VOL. 27 No. 2

BULLETIN

OF THE

TORREY BOTANICAL CLUB

FEBRUARY 1900

New Species of Fungi from various Localities with Notes on some published Species

BY J. B. ELLIS AND B. M. EVERHART

Echinodontium E. & E. nov. gen. (Family *Hydnaceae*).

Differs from *Hydnum* in the thick, woody pileus of *Fomes* and the teeth beset with spines, as in *Mucronoporus* and *Hymenochaete*.

E. tinctorium E. & E.

Fomes tinctorius E. & E. Bull. Torr. Club, **22**: 362. 1895

Hydnum tinctorium Lloyd in literis. On *Abies grandis*, Jonesville, Idaho (Prof. C. V. Piper, comm. C. G. Lloyd).

In the specimen from which *Fomes tinctorius* was described the teeth were all broken off so as to resemble a *Polyporus:* but what were taken for pores were only the hollow bases of the brittle, cinereous teeth which, in the Idaho specimens are about 1 cm. long and 1.5–2 mm thick at the base. The hymenial surface is rather sparingly clothed with subconical, reddish-brown spines, 20–30× 6–7 μ. The spores at first are nearly hyaline.

The characters of this fungus differ so much from *Hydnum* that we propose it here as a new genus.

Corticium macrosporum E. & E.

On dead limbs of *Fraxinus?* Ohio (Lloyd, no. 3113).

Dull white, appressed, thin, appearing at first in orbicular patches 3–5 mm. in diameter, the narrow, white, cottony margin sometimes narrowly involute, at length confluent: spores ovate-elliptical, 10–14 × 7–8 μ, abundant.

[Issued 17, February.]

The hymenium is of a somewhat waxy nature, smooth, but uneven, showing the inequalities of the bark.

Hymenochaete asperata E. & E.

On pine bark, Abita, East Louisiana, Jan. 1898 (Langlois, no. 2647).

Effused, adnate, dull yellow, becoming a little darker in the center, thin, margin irregular, spreading over the bark in irregular shaped patches, 2–6 or more cm. in extent: setae stout, 60–70 × 7–8 μ, tubercular-roughened above and often prolonged at the tip into a hyaline, lance-shaped slender point 20–30 μ long, but often the tips of the setae are rounded and obtuse but still hyaline: spores small, subglobose, 3 μ.

Seems different from *H. scabriseta* Cke.

Zygodesmus pubidus E. & E.

Forming a thin, loosely compacted, light yellow, membranaceous, subpuberulent coating on rotten wood. Newfoundland (Rev. A. C. Waghorne, no. 1026).

Hyphae branching at right angles, subhyaline, sparingly septate, with an occasional zygodesmoid joint: conidia short-elliptical, hyaline, smooth, 4 × 3 μ, with a single large mostly eccentric nucleus.

Mucronoporus sublilacinus E. & E.

On pine logs, Abita Springs, East Louisiana (Langlois, no. 2529).

Pileus semiorbicular, firm, flat, 6–7 cm. long, 9–10 cm. broad, repeatedly zonate with elevated ridges and shallow furrows; surface at first clothed with a cinereous-gray cuticle which finally disappears: margin spreading, subacute, pores round, 0.5–1 cm. long, mouths slightly uneven, obtuse, 200 μ in diameter (not including dissepiments), lilac color on the surface, cinnamon color within; flesh bright cinnamon-yellow, zonate within, about 0.5 cm. thick in the middle, thinning out towards the margin; spines stout, cylindric-conical, projecting part 15–20 × 4 μ.

The lilac colored, larger pores and thicker substance distinguish this from *M. licnoides* Mont.

Dacryomyces cenangioides E. & E.

On dead birch limbs, Nuttallburg, W. Va., Dec. 1897 (L. W. Nuttall, no. 922).

Erumpent, mostly cespitose and connate, forming tufts 0.5–1 cm. in diameter, obconic, discoid, concave above at first but when mature convex above, variously wrinkled, folded and immarginate, liver-color with a lilac tint when fresh, drab-color when dry and quite fragile, texture of coarse inflated hyphae resembling, when the dry plant is broken open, a mass of dirty light-yellowish tomentum: basidia clavate-cylindrical, 40–50 × 6–7 μ with two short, obtuse sterigmata: spores shaped like apple seeds, 12–20 (mostly 15) × 6–8 μ, filled with minute nuclei, becoming 3 or more septate, hyaline.

When dry, bears a striking resemblance to a cespitose *Cenangium*. *Tremella sarcoides* (Dicks.) is found with this.

Asterina Mexicana E. & E.

On *Agave Mexicana*, City of Mexico, May, 1898 (Dr. B. F. G. Egeling).

Perithecia amphigenous, subastomous, small (110–150 μ), rough, black, fringed around the base with coarse, brown, subincurved hairs, seated on appressed, reticulately branched, black mycelium of the *Meliola* type: asci obovate, abruptly short-stipitate, 40–60 × 20–30 μ, or becoming subglobose, 8-spored: sporidia crowded, clavate-cylindrical, uniseptate and constricted near the upper end, upper cell globose, and easily separable, lower cell oblong, 22–27 × 8–10 μ, filled with granular matter, nearly hyaline, becoming brown.

The perithecia are crowded in orbicular patches about 1 cm. diam., often with a white spot in the center.

Melanomma gregarium E. & E.

On decorticated cottonwood limbs, Rooks Co., Kansas, Jan. 1899 (Bartholomew, no. 2532).

Perithecia gregarious, globose-conical, slate color and minutely roughened, 250–350 μ in diameter, base slightly sunk in the wood, finally collapsing above: ostiolum papilliform, black and shining: asci clavate-cylindrical, p. sp. 50–70 × 10–12 μ with abundant, filiform paraphyses: sporidia subbiseriate, oblong or ovate-elliptical, 3-septate and finally slightly constricted at the septa, 12–15 × 5–7 μ.

Differs from *M. rhypodes* E. & E. in its broader, shorter sporidia and collapsing perithecia.

Amphisphaeria aspera E. & E.

On *Tetradymia*, Montrose, Colorado (Bethel, no. 517).

Perithecia gregarious or cespitose, the lower half sunk in the bark, 400–600 μ in diameter, depressed-globose, densely roughened with projecting points, ostiolum papilliform or short-cylindrical: asci clavate-cylindrical, short-stipitate, 80–90 × 75 μ, obscurely paraphysate: sporidia uniseriate, oblong, subinequilateral, uniseptate, not constricted, 20–30 × 8–10 μ, clear brown.

Teichospora brachyasca E. & E.

On decorticated limbs of *Quercus Watsoni*, Rooks Co., Kansas, May, 1899 (Bartholomew, no. 2599).

Perithecia scattered, superficial, depressed-globose, 0.25–0.35 mm. in diameter, ostiolum obscure, papilliform or wanting: asci obovate-oblong, sessile or nearly so, 35–45 × 16–20 μ, sporidia irregularly crowded, obovate, 3-septate, slightly constricted, more distinctly so at the middle septum, one or two cells divided by a longitudinal septum, 14–18 × 6–7 μ.

Schizostoma Nevadensis E. & E.

On decorticated *Ephedra Nevadensis*, Mesa Verde, Colorado, July, 1899 (Bethel, no. 518).

Perithecia gregarious, globose or subelliptical, sunk in the matrix with the upper part projecting, about .5 mm. in diameter, ostiolum narrow, not very conspicuous: asci cylindrical, 75–80 × 7–10 μ, with abundant paraphyses: sporidia overlapping-uniseriate or biseriate, oblong-fusoid, uniseptate, scarcely constricted, 15 × 4–5 μ, pale-brown.

Mycosphaerella lithospermi E. & E.

On dead stems of *Lithospermum officinale*, Gillivray, Ontario, Canada, June, 1898 (Dearness, no. 2862).

Perithecia scattered, pustuliform-prominent, but subcuticular, 170–200 μ in diameter, flattened or sub-collapsed above: asci oblong cylindrical, short-stipitate, 70–80 × 12–15 μ: sporidia biseriate, ovate-elliptical, hyaline, uniseptate and constricted, 12–16 × 6–8 μ.

Leptosphaeria fraserae E. & E.

On dead stems of *Frasera speciosa*, Rico, Colorado, July, 1899 (Bethel, no. 502).

Perithecia scattered, subcuticular, but by the falling away of the cuticle, superficial, globose, becoming depressed, 0.25 mm. in diam.,

ostiolum conic-papilliform, distinct: asci cylindrical or clavate-cylindrical, stipitate, paraphysate, 80–110 × 8–10 μ: sporidia uniseriate, oblong-elliptical, yellow-brown, 3-septate, becoming lightly constricted, especially at the middle septum, 14–16 × 7–8 μ.

The sporidia are much like those of *L. fuscella* B. & Br., but in that species the perithecia are buried and have no ostiolum.

Thyridium vitis E. & E.

On dead shoots of *Vitis riparia*, Rooks Co., Kansas (Bartholomew).

Perithecia gregarious, often 2–3 subconfluent, entirely buried in the bark which is raised into low, flattish pustules over them, 250–300 μ in diameter, grayish inside, thin-walled, globose: ostiolum inconspicuous, barely penetrating the bark: asci clavate-cylindrical, short-stipitate, 100–115 × 15–18 μ, with abundant paraphyses: sporidia obliquely uniseriate, or subbiseriate above, obovate-oblong, brown, 5–7-septate, constricted in the middle, obtusely rounded at the ends, 18–22 × 10–12 μ, with a longitudinal septum running through one or more cells.

Differs from *T. antiquum* E. & E. in its larger asci and larger, differently shaped 5–7-septate sporidia.

Hysterographium graminis E. & E.

On dead culm of *Panicum virgatum* and *Andropogon provincialis*, Rooks Co., Kansas, March, 1899 (Bartholomew, no. 2556).

Erumpent-superficial, 0.5–1 mm. long, 150–200 μ broad, rounded at the ends, with a slight longitudinal furrow along the center: asci clavate-oblong, short-stipitate, paraphysate, p. sp. 60–75 × 15–20 μ: sporidia biseriate, oblong-elliptical, yellow, becoming brown, 3-septate, compressed, scarcely or only slightly constricted at the septa, 16–20 × 7–10 μ, 5–6 μ thick, with a longitudinal septum on the flattened side running through all the cells, viewed edgewise only the transverse septa are visible.

The sporidia resemble very much those of some species of *Pleospora*, as *P. aurea*, *P. compressa*, *P. permunda*, etc.

Hypoderma equiseti E. & E.

On dead stems of *Equisetum hyemale*, Rooks Co., Kansas, Jan., 1899 (Bartholomew, no. 2535).

Perithecia oblong or linear, 1–3 mm. long, covered by the thin epidermis which is split along the middle: asci oblong-clavate,

35–45 × 10–12 μ, short-stipitate, paraphysate? sporidia biseriate, oblong, obtuse, uniseptate, constricted, 13–15 × 4–5 μ, hyaline.

Phyllosticta canescens E. & E.

On leaves of *Ribes divaricatum*, Bear Creek, near Volmer, Idaho, Oct., 1898 (Prof. L. F. Henderson, no. 4707).

Spots large, irregularly occupying and killing half of the leaf, or lobe of a leaf, rusty brown whitening out and becoming minutely furfuraceous above, the surrounding parts of the leaf becoming yellowish: perithecia epiphyllous, prominent, small, 80–100 μ, black: sporules oblong- or ovate-elliptical, mostly with a nucleus in each end, 5–8 × 2.5–3.5 μ.

PHYLLOSTICTA GALACTIS Cke. Grev. **14**: 70. 1885. Exsicc. E. & E., N. A. F. 3153

On leaves of *Galax aphylla*, West Va. (Nuttall).

Spots irregular, pale brown or cinereous, without any distinct margin: perithecia gregarious in dense patches, very minute (80 μ), immersed at the base, punctiform, black, shining: sporules cylindrical, rounded at the ends, 2–4-nucleate, hyaline, 12–15 × 4 μ.

The specimens in N. A. F. are poor and do not well represent this species.

Phyllosticta zonata E. & E.

On living leaves of *Pirus Ioensis*, Ames, Iowa, August, 1899 (H. Harold Hume).

Spots irregular, reddish-brown, 2–10 mm. in diam. or confluent over the greater part of the leaf: zonate, definite, with margin very slightly raised and a little darker: perithecia punctiform, minute, innate, covered by the thin, whitish epidermis, epiphyllous: sporules oblong-elliptical, 3.5–4 × 1.5 μ.

Differs from *P. Briardi* Sacc. and *P. limitata* Pk. in its smaller sporules and zonate spots.

Phoma erysiphoides E. & E.

On *Gnaphalium?* and *Achillea Millefolium*, Morrison, Colorado, May, 1899 (Bethel, no. 472).

Perithecia minute, thickly and evenly scattered on the stems, erumpent-superficial, subglobose, membranaceous, subastomous, of coarse cellular structure: sporules short-elliptical, hyaline, 8–12 × 6–7 μ.

Rhabdospora pachyspora E. & E.

On dead stems of *Erigeron?* Morrison, Colorado, May, 1899 (Bethel, no. 473).

Perithecia scattered, minute, conic-globose, semierumpent: sporules arcuate, 3–4-nucleate, hyaline, subobtuse, 16–25 × 3.5–4 μ.

Dothiorella rhoina E. & E.

On dead limbs of *Rhus Toxicodendron*, Morrison, Colorado, May, 1899 (Bethel, no. 475 partly).

Perithecia bursting through the epidermis, 4–6 together stromatically connected or scattered singly, raising and finally piercing the epidermis or sometimes on the gregariously crowded and slightly connected at base, .35–.5 mm. in diameter, hemispheric-globose, with a papilliform ostiolum: sporules elliptical or ovate-elliptical, subolivaceous, 4–7 × 3–4 μ.

Exosporium pallidum E. & E. occurs on the same limbs.

Sphaeropsis hederae E. & E.

On dead stems of *Hedera Helix*, Nuttallburg, West Va., July, 1899 (L. W. Nuttall, no. 961).

Perithecia suberumpent, thickly scattered, rather flattened above, about 0.25 mm. in diameter with an obscurely papilliform or short conical ostiolum: sporules oblong-elliptical, 20–25 × 8–10 μ.

Sphaeropsis helicis Cke. & Mass. is said to have a long exserted ostiolum and spores 12 × 8 μ.

Sphaeropsis dircae E. & E.

On dead stems of *Dirca palustris*, near Ottawa, Canada, April, 1899 (Macoun, no. 705).

Perithecia gregarious, minute, raising the epidermis into little pustules perforated at the summit by the minute ostiolum: sporules oblong-elliptical, 15–18 × 7–8 μ.

Diplodia hypoxyloides E. & E.

On dead twigs of *Menispermum Canadense*, Emma, Mo., Nov. 1899 (Rev. C. H. Demetrie, no. 720).

Perithecia erumpent, surrounded by the ruptured epidermis, depressed-hemispherical, convex above, about 1 mm. diameter whitish in the center at first, soon slaty-black, white inside and soon hollow, of carbonaceo-coriaceous texture, resembling the perithecia of

Hypoxylon: sporules oblong brown, becoming uniseptate; 12–16×4–5.5 μ on slender basidia about 20×2 μ.

Varies from the usual type of *Diplodia*.

Ascochyta mali E. & E.

On living limbs of *Pirus Malus*, at the Agricultural College, Mich., May, 1899 (C. F. Wheeler).

Spots circular, 0.5–1 cm. in diameter concave, of a pale brick-red color, with the margin narrowly free, sometimes becoming much larger, extending for 2 cm. and nearly surrounding the limb. These spots appear to be formed from the altered substance of the bark which is changed in color and cracks away around the margin from the surrounding bark which remains in its normal condidition: perithecia at first solitary, a single one erumpent in the center of the circular disk, finally 2–4 or more scattered on the same disk: sporules oblong or oblong-elliptical, smoky-hyaline, uniseptate, 6–8×2.5–3.5 μ. On the same spots also occurs a *Phoma* (*P. ambigua* Sacc.)? with sporules much resembling those of the *Ascochyta* only without any septum, and a *Phlyctaena* (*P. Mali* E. & E.) with filiform sporules curved near one end, 20–27×1.25–1.5 μ in numerous smaller perithecia scattered on the spots. The fungus soon kills the limbs.

Stagonospora desmodii E. & E.

On dead stems of *Desmodium tortuosum*, Lake City, Fla., Oct. 1899 (H. H. Hume).

Perithecia scattered or gregarious on reddish-brown discolored, indefinite spots which become darker, subcuticular, 150–200 μ in diameter, slightly raising the cuticle which is blackened over them: sporules oblong, hyaline, 3–4-guttulate, 8–12×4–5 μ.

On the same stems, on elongated black spots with a white center is a *Cercospora* with long, brown, septate hyphae cespitose on a sphaeroid base and slender, hyaline, multinucleate conidia 80–100×3–4 μ, becoming multiseptate (*Cercospora melaleuca* E. & E.).

Camarosporium hederae E. & E.

On dead shoots of *Hedera Helix*, Nuttallburg, W. Va., July, 1899 (L. W. Nuttall, no. 958).

Perithecia erumpent-superficial, ovate, attenuated above into a short-conical or short-cylindrical ostiolum, about 200 μ in diameter, thickly scattered or even densely crowded: sporules globose or

ovate, 1–3-septate, olive-brown, 7–10 × 5–7 μ, occasionally with a longitudinal septum across one or more of the cells.

C. sarmentitium Sacc., on the same host, has spores twice as large but does not differ otherwise. Possibly the W. Va. specimen should be considered as a small-spored form of this.

Septoria philadelphi E. & E.

On leaves of *Philadelphus Lewisii*, near Juliaetta, Idaho, Oct., 1898 (Prof. L. F. Henderson, no. 4702).

Spots amphigenous, irregular in shape, partly limited by the veinlets, 2–10 mm. in diameter, more or less confluent, dirty brown, becoming more or less silvery white: perithecia amphigenous, scattered on the spots, 100–120 μ in diam.: sporules fusoid, mostly curved, 3–6-septate, narrower at one end, 20–40 (exceptionally 60) × 4–5 μ.

Septoria fulvescens Ell. & Halsted.

On faded leaves of *Acer saccharinum.*

The fungus occurs on leaves already faded to light-yellow by the autumnal frosts. On these leaves, mostly along the main nerves are indistinct blotches of a deeper yellow, 1–1.5 cm. broad and indefinitely limited perithecia hypophyllous on these spots 70–80 μ in diameter, slightly flattened or depressed, numerous: sporules oblong-cylindrical, slightly curved, continuous, hyaline, 7–12 × 1.5–2 μ, mostly not over 10 μ long.

Septoria Salliae Ger. and *S. acerinum* West, have longer and different spots.

Septoria flagellifera E. & E.

On leaves of *Pisum sativum*, Brookings, So. Dakota, July, 1898 (L. W. Carter), comm. Dr. N. L. Britton.

Amphigenous, spots suborbicular, 0.25–1 cm., diameter, subzonate, with a slightly raised border, rusty-brown at first, whitening out in the center: perithecia hemispheric—prominent or subconical, dark amber color, 75–120 μ in diameter, sporules filiform, hyaline, nucleolate, only slightly curved, 80–120 × 2–2.5 μ.

Differs from *S. pisi* West, in the different character of the spots and the much longer sporules.

Kellermannia alpina E. & E.

On dead stems of *Aquilegia coerulea* and other dead herbaceous

stems. Red Mountain, Colorado, June, 1899, alt. 12,000 ft. (Bethel, no. 490 in part).

Perithecia erumpent-superficial, black, depressed-globose, about .35 mm. in diameter, with a papilliform ostiolum, membranaceous, cellular, the cells around the ostiolum arranged in radiating lines: sporules fusoid, 4–6-nucleate, hyaline, prolonged above into a slender, slightly curved awn, including which the length is 30–35 μ, width 2.5–3 μ.

Cylindrosporium smilacinae E. & E.

On *Smilacina amplexifolia* Nutt. Near Lake Coeur d'Alene, Idaho, Aug. 1898 (Prof. L. F. Henderson, no. 4688).

Spots dirty-brown, irregular and indefinite, 2–10 mm. diameter, partly limited by the veinlets, soon confluent over the greater part of the leaf, which turns yellow around them, acervuli amphigenous, tuberculiform-erumpent, black outside, amber-color or flesh-color within: conidia cylindrical or clavate-cylindrical, guttulate, more or less curved, mostly narrowed at one end, hyaline, 50–70 × 3.5–4.5 μ.

The black, erumpent acervuli have the appearance of a *Phyllachora*.

Pestalozzia crataegi E. & E.

On leaves of *Crataegus parvifolia*, Lake City, Florida, Nov. 1899 (H. H. Hume).

Acervuli black, erumpent, convex, 150 μ in diameter, mostly concentrically arranged on large (0.5–1.5 cm.) brown spots, mostly on the upper side of the leaf, but occasionally hypophyllous: conidia oblong-cylindrical, 5-septate, scarcely constricted, the four inner cells brown, terminal cells small, hyaline, 20–23 × 7–8 μ, apical cells with a short (4–5 μ), single oblique bristle, pedicel slender, hyaline, 12–15 μ.

Diplocladium cylindrosporum E. & E.

On dead leaves of *Asimina triloba*, Nuttallburg, West Va., July 31, 1899 (L. W. Nuttall).

Fertile hyphae fasciculate, hyaline, erect, 1–2-septate, 50–110 × 5–6 μ, subdichotomously branched above, the terminal branchlets short and slightly curved, bearing at their tips the cylindrical hyaline, erect, obtuse, uniseptate conidia 40–50 × 4–5 μ.

The short terminal branches resemble birds' claws. With the fertile hyphae are a few much longer, simple straight ones swollen at the tip.

Hadotrichum lupini E. & E.

On leaves of *Lupinus humilis*, Wyoming (Nelson), on *L. albifrons*, California (McClatchie), on *Lupinus* sp., Colorado (C. F. Baker).

Fertile hyphae clavate-cylindrical, continuous, olivaceous, 20–25×4 μ, densely fasciculate: conidia globose, subolivaceous, smooth, with a rather thick epispore, 10–12 μ in diameter.

In company with *Phyllosticta ferax* E. & E. (Proc. Phil. Acad. 1894: 355).

Mostly in the center of brownish dead spots surrounded by a broad belt of perithecia of the *Phyllosticta* of which it seems to be the conidial stage.

Pilacre pallida E. & E.

On rotten wood, Chattanooga, Colorado, June 19, 1899 (E. Bethel, no. 489).

Gregarious. Stipe stout, 1.5–2 mm. high, .75 mm. thick, equal or slightly contracted below, surrounded at base by white, straight, radiating threads which are closely appressed to the matrix, surface of stipe slightly roughened, dirty-flesh-color: head depressed, subdiscoid, subumbilicate beneath, 1–1.5 mm. across, covered with a thin umber colored membrane which soon disappears, exposing the dirty white, coarsely reticulate capillitium, the fertile threads of which are roughened by minute projecting points bearing the elliptical 6–8 × 5–6 μ, nearly hyaline conidia.

The head finally falls off all but the base which remains as a white convex disk on the top of the stipe.

Exosporium pallidum E. & E.

On dead limbs of *Rhus Toxicodendron*, Morrison, Colorado, May, 1899 (Prof. E. Bethel, no. 475).

Sporodochia bursting through the epidermis, 3–4 or more together, stromatically connected at base or occasionally single, 0.5–0.75 mm. in diameter, mostly flattened above, grayish inside, densely clothed on the surface with the stout (20–30 × 5–7 μ) hyaline (becoming black)? simple sporophores bearing at their tips the oblong or oblong-elliptical, 2- (sometimes 3-) septate more or less constricted, yellow-brown conidia 25–50 × 14–18 μ.

Differs from *E. clavuligerum* Lk. in its continuous, hyaline sporophores.

Dasyscypha tuberculiformis E. & E.

On dead stems of *Aquilegia coerulea*, Red Mt., Colorado, June, 1899, 12,000 ft. alt. (Bethel, no. 490).

Gregarious, erumpent, tuberculiform, 0.5 mm. in diameter, subtremelloid when fresh, clothed with long, white, mostly appressed hairs, immarginate, with a small, round opening at the top, the orifice surrounded by reflexed, straight, white, continuous hairs: asci clavate-cylindrical, short-stipitate, 75 × 10 μ, with straight, linear paraphyses about as long as the asci: sporidia biseriate, oblong, hyaline, continuous, 10–12 × 2.5–3 μ.

The specimens were not well matured so that the form and size of the sporidia will have to be more accurately ascertained hereafter.

Pyrenopeziza Coloradensis E. & E.

On dead stems of *Potentilla*, Red Mountain, Colorado, June, 1899, alt. 12,000 ft. (Bethel, no. 492).

Ascomata scattered, superficial, black, with a narrow, slightly incurved margin, disk concave or plane, $\frac{1}{12}$–1 mm. across: asci clavate-oblong, 100–110 × 15 μ, with simple stout paraphyses: sporidia biseriate, elliptical, with two large nuclei, hyaline, 20 × 10 μ.

Haematomyxa ascoboloides E. & E.

On dead herbaceous stems, Takoma Park, Maryland, February 26, 1899 (C. L. Shear).

Erumpent-superficial, orbicular, carnose-tremellose, convex-discoid and wine-color when fresh, concave and nearly black when dry, 0.5–0.75 mm. in diameter with a slight, dark-colored margin. The surface of the disk when fresh is distinctly roughened by the projecting tips of the asci as in *Ascobolus:* asci clavate-cylindrical, 80–100 × 12–15 μ, yellowish in the mass, paraphyses filiform, branched above, sporidia uniseriate, oblong-elliptical, 3-septate and more or less constricted at the septa, rounded at the ends, some of them slightly curved, submuriform, yellowish-hyaline, 18–22 × 8–10 μ.

Also on weather-beaten oak post, Kansas (Bartholomew).

Puccinia annulata E. & E.

On *Epilobium* sp., Yellowstone National Park, July, 1899 (Prof. Aven Nelson, no. 5930).

III. Sori hypophyllous, minute, crowded in orbicular patches 1–4 mm. in diameter surrounded by a narrow pallid ring and cov-

ered more or less with fragments of the ruptured epidermis: teleutospores cuneate or clavate, 25–35 × 12–15 μ, distinctly constricted, smooth, pale-yellow, epispore much thickened at the apex (8–10 μ thick) and dark-brown, upper cell elliptical or subglobose, lower cell narrowed to the pedicel which is hyaline, attenuated below and about 20 μ long.

The sori are nearly black and occur also sparingly along the midrib on the upper side of the leaf.

Puccinia synthyridis E. & E.

On leaves of *Synthyris rubra* Kunth, Pullman, Wash., June, 1898 (Prof. C. V. Piper, no. 390).

III. Sori amphigenous, scattered, 0.5–1 mm. in diameter, covered at first, then erumpent and surrounded by the ruptured epidermis, cinnamon-brown, flattish and pulverulent: teleutospores elliptical, rounded at both ends, constricted in the middle, light brown, epispore smooth or nearly so, slightly thickened at the apex with a flattish, transparent papilla, 20–30 × 15–20 μ: pedicels very short.

Differs from *P. acrophila* Pk. in the absence of any decided spots and the rather smaller spores. Specimens were sent to Mr. Peck who is of the opinion that this is not his *P. acrophila.*

Puccinia circinans E. & E.

On *Pentstemon spectabilis*, Grand Cañon of the Colorado (Prof. J. W. Toumey).

Spots orbicular or irregular, rusty-brown, zonate, darker in the center, 0.5–1.5 cm. in diameter, teleutosori amphigenous, subhemispherical, about .5 mm. in diameter, subcircinately arranged on the spots: teleutospores obovate or elliptical, cinnamon-brown, 30–40 × 15–20 μ, constricted, rounded above, and sometimes below, epispore thickened at the apex and darker: pedicels hyaline, as long as or longer than the spores.

Differs from *P. pentstemonis*, Pk. in the large conspicuous spots and according to Prof. J. C. Arthur, is distinct from *P. Mexicana* Dietel and Holway.

Puccinia musenii E. & E.

On *Musenium tenuifolium*, "Freeze out Hills," Wyoming, July 10, 1898 (Elias Nelson, 4491).

III. Sori pustuliform, oblong, 1–5 mm. long by 1 mm. broad, loosely covered by the lead-colored epidermis which is tardily

ruptured: teleutospores elliptical, scarcely constricted at the septum, rounded at the ends, deep chestnut-brown, 22–30 × 15–20 μ epispore minutely muriculate-roughened, very slightly thickened at the apex: pedicels short, 10–15 μ long, deciduous.

Seems distinct from any of the other species on the Umbelliferae. Comes near *P. enormis* Fckl. from which it differs in its shorter, deeper colored spores without any apical papilla.

Puccinia cornigera E. & E.

On *Tetraneuris Torreyana*, "Freeze-out Hills," Wyoming, July 10, 1898 (Elias Nelson, no. 4852).

III. Sori minute (0.5 mm.) orbicular, crowded, deeply sunk in the leaf and covered by the epidermis, then suberumpent and open above, amphigenous, leaf more or less swollen: teleutospores oblong, broadly constricted in the middle, rather abruptly attenuated or rounded below, epispore thickened above, with a conical, horn-like, subhyaline projection (often oblique) at the apex, 8–12 μ long: pedicel nearly hyaline, 60–80 μ long.

HENDERSONIA DIPLODIOIDES E. & E. Bull. Torr. Club, **25**: 510. 1898

The specific name should be changed to *angustifolia*, as there is already a *Hendersonia diplodioides* E. & E., Bull. Wash. Coll. **1**: 6.

GLOEOSPORIUM ALBOFERRUGINEUM E. & E. Proc. Acad. Nat. Sci. Phil. 1898: 371

A reëxamination of specimens of this species shows only *Discosia maculicola* Ger., the sporules of which may have been mistaken for *Gloeosporium* spores, and if so the species must be abandoned.

USTILAGO SPOROBOLI E. & E. Bull. Torr. Club, **24**: 282. 1897

Ustilago funalis E. & E. *id.* **24**: 257. 1897

This is not distinct from *Ustilago hypodiles* (Schlecht.).

UROMYCES BICOLOR E. & E. Bull. Torr. Club, **24**: 282. 1897

Specimens of this species collected by Professor Aven Nelson in the Yellowstone National Park differ from the original specimen from "Death Valley," in having the teleutospore sori elongated 1–5 × 0.5–0.75 mm., finally naked but surrounded by the lead-colored,

ruptured epidermis. On some of the leaves, however, are found the small (0.5–1 mm.) punctiform sori mentioned in the original description. The uredospores are accompanied by paraphyses.

PUCCINIA SIMILIS E. & E., Bull. Torr. Club, **25**: 508. 1898

The measurements of the teleutospores of this species are incorrectly given. They should be 35–55 × 22–27 μ. The uredospores also vary from globose; 15–26 μ in diameter to ovate or elliptical, 20–30 × 16–22 μ and are coarsely echinulate, much more distinctly so than in *P. tanaceti* according to Prof. J. C. Arthur. This is identical with *P. conferta* D. & H., but the descriptions of these two species are very different. *P. similis* has the sori *scattered* and larger, and teleutospores rounded at both ends, not to speak of the presence of *Uredo* and *Accidium* in the last mentioned species.

PUCCINIA GRINDELIAE Peck, Bot. Gaz. **4**: 127. 1879

Puccinia variolans Hark. Bull. Calif. Acad. Sci. Feb. 1884, and *Puccinia tuberculans* E. & E. Proc. Phil. Acad. 153. 1893, are synonyms of this species.

CYTISPORA ANNULARIS E. & E. Bull. Torr. Club, **24**: 288. 1897

Found also in Canada, by Mr. Macoun, on *Fraxinus sambucifolia*. When the epidermis is pulled off the perithecia come with it and when dry they are strongly compressed below so as to become cup-shaped.

ANTHOSTOMELLA MAMMOIDES E. & E. Proc. Acad. Nat. Sci. Phila. 139. 1893

A reëxamination of the original material shows that some of the larger pustules contain 2–4 perithecia.

The species then is ambiguous between *Anthostomella* and *Anthostoma*.

LOPHIOSTOMA PUSTULATUM E. & E. Bull. Torr. Club, **25**: 503. 1898, is not distinct from *Pseudovalsa viticola* E. & E. Proc. Acad. Nat. Sci. Phil. 343. 1894.

It is *Pseudovalsa* and not *Lophiostoma* for though some of the ostiola are slightly compressed, the perithecia are, as a rule, enclosed

in a hemispherical stroma two to four in a stroma. The examination of more abundant material recently sent by Mr. Bartholomew, makes this correction necessary.

RAMULARIA SIDALCEAE E. & E. Jour. Mycology 1: 1888

Specimens on *Sidalcea candida* collected by Mr. E. Bartholomew at Ohio City, Colorado, Sept., 1899, vary from the description cited in having the spots confluent over the greater part of the upper surface of the leaf and the tuft of hyphae also densely confluent below. The conidia also vary from globose, 10–15 μ in diam. to oblong or oblong-elliptical, 12–22 × 8–10 μ.

This is not typical *Ramularia*.

Catalogue of Plants collected by Messrs. Schuchert, Stein and White on the East coast of Baffin's Land and West coast of Greenland

By Theo. Holm

The present catalogue is based upon a collection of plants which was made in connection with the Peary Arctic expedition of 1897. Messrs. Charles Schuchert and David White collected at Signuia, near Cape Haven, on the east coast of Baffin's Land, c. 63° n. lat. and 64° w. long., besides on the Nugsuak peninsula in Greenland between 70° and 71° n. lat., while Mr. Robert Stein collected on Hoyt island, about 15 miles north of Wilcox Head, c. 74°10′ n. lat., on the west coast of Greenland. The localities Umanak (island), Sarfarfik, Pagtorfik and Kook are situated on the northern coast of the Nugsuak peninsula, Ata and Atanikerdluk on the southern.

Dryas integrifolia M. Vahl. Signuia; Umanak; Kook; Pagtorfik.

Potentilla pulchella R. Br. Pagtorfik.

Potentilla Vahliana Lehm. Hoyt island.

Potentilla nivea L. Umanak; Pagtorfik; Ata.

Chamaenerium latifolium (L.) Spach. Signuia; Umanak; Atanikerdluk.

Chamaenerium latifolium, β tenuiflorum Th. Fr. et Lge. Signuia.

Empetrum nigrum L. Kook; Umanak; Hoyt island.

Silene acaulis L. Signuia; Umanak.

Melandrium apetalum (L.) Fzl. Umanak; Pagtorfik.

Melandrium involucratum (Cham. et Schl.) *β affine* Rohrb. Umanak.

Halianthus peploides (L.) Fr. *β diffusa* Hornem. Signuia; Kook; Atanikerdluk.

Arenaria verna Bartl. *δ propinqua* (Rich.). Pagtorfik.

Stellaria humifusa Rottb. Signuia.

Stellaria longipes Goldie. Signuia; Cape Haven; Umanak; Pagtorfik.

Cerastium alpinum L. Umanak.

Cerastium alpinum β lanatum Lindbl. Signuia.
Cochlearia fenestrata R. Br. Pagtorfik.
Draba nivalis Liljebl. Cape Haven; Hoyt island.
Draba corymbosa R. Br. Pagtorfik.
Draba arctica M. Vahl. Umanak; Pagtorfik; Ata.
Cardamine bellidifolia L. Signuia; Hoyt island.
Arabis alpina L. Ata.
Papaver radicatum Rottb. Signuia; Umanak; Hoyt island.
Ranunculus pygmaeus Wahlbg. Signuia.
Ranunculus hyperboreus Rottb. Signuia.
Ranunculus nivalis L. Pagtorfik.
Saxifraga nivalis L. Pagtorfik; Hoyt island.
Saxifraga stellaris L. *forma comosa* Poir. Signuia.
Saxifraga cernua L. Umanak; Pagtorfik.
Saxifraga rivularis L. Cape Haven; Hoyt island.
Saxifraga decipiens Ehrh. Signuia; Pagtorfik.
Saxifraga tricuspidata Rottb. Umanak; Pagtorfik; Hoyt island.
Saxifraga aizoides L. Ata; Pagtorfik.
Saxifraga oppositifolia L. Atanikerdluk; Pagtorfik; Hoyt island.
Armeria vulgaris Willd. var. *Sibirica* (Turcz.). Umanak.
Veronica alpina L. Ata.
Veronica saxatilis L. f. Ata; Atanikerdluk.
Pedicularis hirsuta L. Signuia; Umanak; Pagtorfik.
Pedicularis lanata Cham. Kook.
Stenhammaria maritima (L.) Rchb. Signuia.
Diapensia Lapponica L. Signuia.
Pyrola grandiflora Rad. Umanak; Hoyt island.
Arctostaphylos alpina (L.) Spr. Cape Haven.
Phyllodoce coerulea Gr. et Godr. Cape Haven.
Cassiope tetragona (L.) Don. Signuia; Umanak; Pagtorfik; Hoyt island; Kook.
Loiseleuria procumbens (L.) Desv. Hoyt island.
Ledum palustre L. *β decumbens* Ait. Cape Haven; Kook.
Vaccinium uliginosum L. **microphyllum* Lge. Cape Haven; Umanak.
Campanula uniflora L. Signuia.

Campanula rotundifolia L. *δ arctica* Lge. Umanak.

Taraxacum officinale Web. **ceratophorum* (Ledebour). Signuia; Sarfarfik.

Artemisia borealis Pall. Ata; Umanak.

Antennaria alpina Gaertn. Umanak; Hoyt island.

Erigeron uniflorus L. *β pulchellus* Fr. Hoyt island.

Arnica alpina Murr. Umanak; Sarfarfik.

Koenigia Islandica L. Signuia.

Polygonum viviparum L. Collected at all stations.

Oxyria digyna Campd. Collected at all stations.

Salix herbacea L. Cape Haven.

Salix Groenlandica Lundstr. Cape Haven.

Salix glauca L. Signuia; Cape Haven; Ata; Umanak.

Betula nana L. Umanak.

Tofieldia borealis Wahlbg. Hoyt island.

Juncus arcticus Willd. Ata.

Luzula arcuata (Wahlbg., Hook. Umanak; Hoyt island.

Luzula confusa Lindeb. Cape Haven.

Eriophorum Scheuchzerii Hppe. Signuia; Hoyt island.

Eriophorum angustifolium Roth. Signuia.

Carex misandra R. Br. Godhavn on Disco island.

Carex rigida Good. Cape Haven.

Carex vesicaria L. *γ alpigena* Fr. Umanak.

Elymus arenarius L. *β villosus* E. Mey. Umanak; Atanikerdluk.

Alopecurus alpinus Sm. Umanak; Pagtorfik.

Hierochloa alpina R. et S. Cape Haven; in Greenland at all stations.

Calamagrostis stricta (Timm.) var. *borealis* Laest. Godhavn; on Disco island.

Trisetum subspicatum Beauv. Cape Haven; in Greenland at all stations.

Catabrosa algida Fr. Cape Haven.

Colpodium latifolium R. Br. Umanak.

Poa glauca M. Vahl. Cape Haven.

Poa glauca δ atroviolacea Lge. Umanak.

Poa alpina L. Umanak.

Poa flexuosa Wahlbg. Cape Haven; in Greenland at all stations.

Festuca ovina L. *γ alpina* Koch. Cape Haven.

Festuca ovina δ duriuscula (L.). Umanak.

Lycopodium Selago L. Signuia; Hoyt island.

Cystopteris fragilis Bernh. var. *arctica* Koch. Pagtorfik; Hoyt island.

Equisetum variegatum Schl. Sarfarfik.

Equisetum arvense L. Kook; Sarfarfik.

BROOKLAND, D. C., Nov. 1899.

An Enumeration of the Plants collected by Dr. H. H. Rusby in South America, 1885–1886, XXIX

By H. H. Rusby

(Continued from Bull. Torr. Club, 26: 31. 22 Ja. 1900.)

Besleria longipedunculata Britton sp. nov.

Branchlets, inflorescence and lower leaf-surfaces sparsely short pilose: petioles (only the upper leaves seen) 3–5 cm. long, stout, broad, channeled above, nerved underneath: blades 1.5–3 dm. long, .5–1.5 dm. broad, obovate, the margin coarsely and most irregularly sinuately lobed, as though due to injury, but the same in both Mr. Bang's collections and my own, very thin, dark-green above, pale underneath, where the broad coarse midrib and strongly incurved secondaries are very prominent: peduncles 1–1.5 dm. long, weak, ascending, about 5–8-flowered: pedicels 1.5–3 cm. long, coarse and weak: calyx-tube 5 mm. long and nearly twice as broad, hemispherical, the lobes of about the same length: corolla 2 cm. long, campanulate with the upper half contracted, glabrous, thickish, crimson, the lobes 5–8 mm. long.

Mapiri, Bolivia, 5000 ft., Apr., 1880 (no. 2436). The same as Bang's no. 2539. Dr. Britton says, "Related to *B. divaricata* Poepp. (Mathews' no. 2006), but leaves and flowers twice as large."

BIGNONIACEAE

Arrabidaea obovata DC. Prod. 9: 185. Guanai, 2000 ft., May, 1886 (no. 1153), and Mapiri, nos. 1131 and 1132.

Arrabidaea florida DC. Prod. 9: 184. Guanai, 3000 ft., May, 1886 (no. 1133), and Reis, 1500 ft., June (no. 1135).

Arrabidaea Orbignyana DC. Prod. 9: 184. Guanai, 2000 ft., May, 1886 (no. 1134).

Lundia densiflora DC. Prod. 9: 181. Mapiri, 5000 ft., April, 1886 (no. 1136). The same as Spruce's 2232.

Bignonia glutinosa DC. Prod. 9: 162. Guanai, 2000 ft., May, 1886 (nos. 1147 and 1154).

Bignonia pyramidata Rich. Act. Soc. Hist. Nat. Par. 1: 110. 1792? Guanai, 2000 ft., May, 1886 (nos. 1149 and 1152). The leaves are less pubescent underneath.

Bignonia unguis L. Sp. Pl. 623. Junction of Rivers Beni and Madre de Dios, Aug. 1886 (nos. 1137 and 2569).

Bignonia venusta Ker. Bot. Reg. *pl.* 249. Guanai, 2000 ft. May, 1886 (no. 2725).

Bignonia sp. near *B. dentata* DC., but probably undescribed. Flowers are wanting. Guanai, 2000 feet, May, 1886 (no. 1148).

Bignonia, three species, the specimens unfit for determination. Guanai, 2000 ft., May, 1886 (nos. 1138 and 1146), and Unduavi, 8000 ft., Oct., 1885 (no. 2537).

Bignonia sp. (?) Guanai, 2000 ft., May, 1886 (no. 2724). The material is unfit for dissection.

Bignonia sp., Guanai, 2000 ft. May, 1886 (no. 1148). This is almost certainly undescribed, but flowers are wanting.

Bignonia Benensis Britton, sp. nov.

Inflorescence and flowers minutely puberulent: branchlets slender, coarsely sulcate: petioles 3 or 4 cm. long, stoutish, deeply pitted at the enlarged summit, between the petiolules: leaflets 2 or 3: petiolules of the lateral .5–1 cm. long, the blades 6 or 7 cm. long, 2.5–3.5 cm. broad, ovate, slightly cordate, very short-pointed but obtusish, dark-green, coriaceous, the slender venation lightly prominent on both sides, the 10–12 pairs of secondaries connecting near the margin: terminal leaflet similar, but its petiolule two or three times as long, the blade one third longer and relatively broader: cyme shortly and stoutly peduncled or sub-sessile, subulate-bracted: pedicels about 7 mm. long, thickened at the summit: calyx thick, nearly 1 cm. long, 6 mm. broad, campanulate, the mouth oblique, sinuately lobed: corolla-tube infundibular, the lower half lightly contracted and darker, about 5 cm. long, 1.5 cm. broad at the summit, the spreading limb 3 cm. broad: the lobes rounded.

Junction of Rivers Beni and Madre de Dios, Aug. 1886 (no. 1143).

Bignonia Boliviana sp. nov.

Glabrous except the minutely puberulent flowers: branches terete, gray, white spotted: branchlets slender, strongly striate: leaves ternate; petioles 3–5 cm. long, striate: lateral petiolules, .5–1 cm., terminal 2 cm. long: leaflets, .5–1 dm. long, 3–6 cm. broad, oval or ovate, at the base rounded, truncate or sub-cordate, at the apex very short-pointed and obtuse, very thin, dark-green, the dark, coarse and coarsely reticulate venation not prominent,

the secondaries 8 or 10 pairs: panicles 1 dm. long, loosely flowered, stoutly peduncled: pedicels slender, .5–1 cm. long: calyx 6–7 mm. long, 5–6 mm. broad, campanulate, the margin truncate, almost entire: corolla (color?) 5 cm. long, the tube campanulate, the spreading limb nearly 3 cm. broad, as pressed.

Junction of Rivers Beni and Madre de Dios, August, 1886 (no. 1142). No. 1210 (Beni River, July, 1886) may be the same. Its leaves are biternate, the leaflets ovate, 1–1.5 dm. long, 4–6.5 cm. broad, the flowers large and distinctly yellow.

Bignonia Rusbyi Britton, sp. nov.

Yellowish-tomentellate except the upper leaf-surfaces: branchlets stoutish, purplish, finely many-striate: petiole 2 cm. long, stout, costate: leaflets 2, the petiolules nearly equaling the petiole, blades .75–1.25 dm. long, 3–5 cm. broad, oblong, blunt to rounded at the base, abruptly very short-pointed and obtuse at the apex, thickish, the venation lightly impressed above, prominent underneath, the secondaries 8–10 pairs: panicle 1 dm. long or less, shortly and stoutly peduncled, densely flowered: pedicels .5–1 cm. long, very stout: calyx thick, 8 mm. long and broad, campanulate, the margin truncate and entire: corolla-tube strongly curved, campanulate-infundibular, 4 cm. long, 2 cm. broad at the summit, as pressed; the recurved limb 4–5 cm. broad.

Junction of Rivers Beni and Madre de Dios, August, 1886, (no. 1140). Dr. Britton regards Spruce's no. 1721, from the Rio Negro, as of this species.

Bignonia brevipes sp. nov.

Finely puberulent: branches terete, finely costate: petioles about 2 cm. long; leaflets 2, the petiolules about 1 cm. long, stoutish, sub-terete: blades .5–1 cm. long, 2–3 cm. broad, lance-oblong, rounded at the base, acuminate and acute at the apex, entire, thin but rigid, bright-green, punctate, the venation inconspicuous above, prominent underneath, the secondaries about 6 pairs, strongly ascending and incurved, their upper portions sinuous near the margin before communicating, connected by the straightish tertiaries, the lowest pair elongated so as to make the leaf somewhat 3-nerved; racemes very short, densely several-flowered, short-peduncled, lanceolate-bracted: pedicels about 5 mm. long, slender: calyx campanulate, 7 mm. long and somewhat broader, lobed about one third of the way, the lobes broad, rounded at the apex, the sinuses acute; corolla-tube nearly 3 cm. long, the lower fourth contracted, the remainder broadly and openly campanulate, the recurved-

spreading limb about 2 cm. broad: pod cylindrical, elongated, 4–5 mm. thick.

Junction of Rivers Beni and Madre de Dios, Aug. 1886 (no. 1144).

Macfadyena Bangii sp. nov.

Glabrous: branchlets stoutish, light-gray-brown: petioles 2–3 cm. long, stout, strongly sulcate: leaflets 2, with a terminal tendril: petiolules .5–1 cm. long, very stout, broadly channeled above: leaflets 1–1.25 cm. long, 5–6 cm. broad, ovate, rounded to subcordate at the base, very short-pointed at the apex, thick and rigid, pale-green, slightly shining above, the venation lightly prominent underneath, the 7 pairs of very slender secondaries connected distantly from the margin: tendril simple, stout, elongated: peduncle about 5 cm. long, stout, few-flowered: pedicels about 5 mm. long, very stout: bract 3 cm. long, closed toward the base, campanulate, lightly nerved, tipped with a short, very thick, black, blunt strongly incurved beak: tube of the yellow corolla 5 cm. long, 1 cm. broad at the summit, infundibular, strongly nerved: lobes 3 cm. long and broad, narrowed at the base, rounded at the summit.

Junction of Rivers Beni and Madre de Dios, Aug. 1886 (no. 1139). Mixed with this species are some fragments of another with lanceolate leaflets, little more than half as long, and thin, and the flowers smaller though very similar. This also appears undescribed, but the material is too scanty.

Adenocalymna multiglandulosum Benth. (*fide* Britton). Junction of Rivers Beni and Madre de Dios, Aug. 1886 (nos. 1145 and 1786), and Unduavi, 8000 ft., Oct. 1885 (no. 1141).

Adenocalymna bracteatum (Cham.) DC. Prod. **9**: 200 (*Bignonia bracteata* Cham. Linnaea, **7**: 692. 1832. Guanai, 2000 ft., May, 1886 (nos. 1129 and 1130).

Pleonotoma Brittoni sp. nov.

Glabrous: branches very slender, coarsely angled: stipules 1.75 cm. long, 2.25 cm. broad, cordate, highly inaequilateral, mucronate, entire, conspicuously nerved: petioles 5 or 6 cm. long: entire leaf about 2 dm. long and broad: pinnae three pairs, one of the lowest pair a tendril, the other of two and a half pairs of leaflets (of which the lowest or middle pair are ternate) the middle of one and a half pairs, the upper of single leaflets: leaflets sub-sessile or short-petioluled, except the terminal, which are strongly petioluled, 2.5–6 cm. long, 1.25–3 cm. broad, the terminal

much larger, ovate, rounded at the base, abruptly short-acuminate and acute at the apex, thin, deep-green, the venation very slender, lightly prominent underneath, the rather crooked secondaries about 6 pairs, connecting near the margin: panicle (but one seen) 5 or 6 cm. long, loosely few-flowered: pedicels about 1 cm. long: calyx companulate, 8 mm. long, 6 mm. broad, as pressed, rounded at the base, truncate and entire at the apex, thickish, obscurely nerved: abruptly contracted base of light-yellow corolla-tube 1.5 cm. long, 3.5 mm. broad, as pressed, cylindrical, the remainder 3 cm. long, 1.6 cm. broad, campanulate, the spreading border 4 cm. broad, the lobes sub-rotund.

Falls of Madeira, Brazil, Oct., 1886 (no. 1150).

Callichlamys riparia Miquel, Linnaea, **18**: 254. 1844. Yungas, 4000 ft., 1885 (no. 2271).

Tecoma Capensis Lindl. Bot. Reg. *pl. 1117*. Yungas, 4000 ft., 1885 (no. 2448).

Tecoma Gaudichaudii DC. Prod. **9**: 223. Unduavi, 8000 ft., Oct., 1885 (no. 2412).

Tecoma mollis (H.B.K.) Nov. Gen. et Sp. **3**: 144. Sorata, 8000 ft., February, 1886 (no. 1128). The same as Mandon's no. 503.

Jacaranda acutifolia Humb. & Bonp. Pl. Aequin. **1**: 59. *pl. 17*. Yungas, 6000 ft., 1885 (no. 1164).

Jacaranda longiflora Britton, sp. nov.

Glabrous: branchlets stout, soft, whitish: petioles dark-purple, coarsely sulcate, 5 or 6 cm. long: primary petiolules 1.5–2 cm. long, about 4 pairs: entire leaf (but one seen) 3.5 dm. long, 3 dm. broad, bipinnate, the leaflets about 6 pairs on the principal pinnae, subsessile, 3–5 cm. long, 1.5–2.5 cm. broad, ovate, mostly slightly inequilateral, blunt at the base, abruptly short-pointed and acute at the apex, entire, thin, dark-green, venation lightly prominent underneath, the secondaries about 10 pairs, at an angle of about 45°, slightly up-curved: panicles fascicled, about 1.5 dm. broad, loosely flowered, the peduncles dark, 1.5–2 cm. long: bracts 5–8 mm. long, lanceolate, acuminate and acute: pedicels about 5 mm. long thickened at the summit, mostly 2-bracteolate: calyx campanulate with a turbinate base, about 8 mm. long, 5 mm. broad, the teeth 1–2 mm. long, very acute, the sinuses very broad and shallow: corolla 6–7 cm. long, slightly curved; base of the tube contracted abruptly, 1 cm. long, 5 mm. broad, the remainder infundibular, 4 cm. long, 1.25 cm. broad,

as pressed, the spreading limb 3.5 or 4 cm. broad: filaments, one pair strongly sigmoid-curved, the others simply curved, reaching, as curved, about to the middle of the corolla, slender: anthers transverse, about 4 mm. long: style stout, upwardly thickened, the branches 6 mm. long, broad, flattened, the apex rounded.

Junction of Rivers Beni and Madre de Dios, Aug., 1886 (no. 1151).

ACANTHACEAE.

Mendoncia puberula micropus Nees; DC. Prod. **11**: 53. Guanai, 2000 ft., May, 1886 (nos. 2406 and 2407).

Mendoncia glabra Nees; DC. Prod. **11**: 52. Mapiri, 2500 ft., May, 1886 (no. 2409).

Mendoncia Lindavii Rusby, Mem. Torr. Club, **4**: 24. (no. 2405).

Mendoncia Velloziana Nees; DC. Prod. **11**: 52. Guanai, 2000 ft., May, 1886 (no. 2408).

Elytraria imbricata (Vahl.) Pers. Syn. **1**: 23 (*Justicia imbricata* Vahl. Eclog. Am. **1**: 1. *E. tridentata* Vahl, Enum. **1**: 107). Reis, 1500 ft., June, 1886 (no. 1115).

Ruellia pedunculosa Nees; DC. Prod. **11**: 211 in Syn. sub. *Arrhostoxylum pedunculosum*. Guanai, 2000 ft., May, 1886 (no. 2426). The same as Bang's no. 1223 and Mathews' no. 3148.

Ruellia paniculata L. Sp. Pl. 635, *fide* Britton. Yungas, 6000 ft., 1885 (no. 2410).

Ruellia Willdenoviana (Nees) Lindau (*Stemonacanthus Willdenoviana* Nees; DC. Prod. **11**: 207). Guanai, 2000 ft., May, 1886 (nos. 1120 and 1123), Mapiri, 2500 ft., May, 1886 (no. 1122), and Yungas, 6000 ft., 1885 (no. 1124).

Ruellia Bangii Rusby, Mem. Torr. Club, **6**: 102. Guanai, 2000 ft., May, 1886 (no. 1117).

Ruellia (Dipteracanthus) elliptica sp. nov.

Strigose-hirsute: root stout, coarsely branched: stems erect, stoutish, terete, branched from the base: leaves sessile, 3–6 cm. long, 1–2 cm. broad, obovate, acute at the base, blunt at the apex, entire, thickish: calyx 5–7 mm. long, divided nearly to the base, the lobes lance-linear, acuminate: corolla pale-purple, pubescent, nearly 3 cm. long, the tube strongly curved, passing gradually into the infundibular-campanulate limb, the lobes 5–7 mm. long:

anthers 3.5 mm. long, 1 mm. broad, lanceolate, obtuse, obtusely sagittate, the thecae subequal.

Guanai, 2000 ft., May, 1886 (no. 2562). The same as Bang's no. 2472.

Ruellia Lechleri Britton, sp. nov.

Younger portions, leaf-surfaces, etc., finely short-strigose: branches erect, quadrangular, dark-brown or blackish: petioles 1–3 cm. long, sharply margined, dilated at the insertion: blades .5–1 dm. long, 1.75–3.5 cm. broad, ovate, abruptly acuminate and acute at both ends, dark-green, thin, the venation prominent both sides, the 8 or 10 pairs of secondaries stout, strongly ascending, connected by numerous stout, straight tertiaries: flowers sessile and concealed at the base among the crowded, closely appressed terminal leaves: bracts foliaceous: calyx 1.5 cm. long, the tube campanulate, 3 or 4 cm. long, the lobes linear-attenuate, rigid, acute: corolla-tube consisting of a strongly curved, cylindrical lower portion 3.5 cm. long (in the type) and about 2 mm. thick, pubescent with spreading or slightly reflexed hairs, and an upper, infundibular, sigmoid curved portion about 1 cm. long, the lips nearly 2 cm. long: stamens not reaching to the base of the lips, the filaments thick and dilated, the anthers nearly 5 mm. long, 2 mm. broad at the base, sagittate, obtuse, the thecae parallel: style about equaling the stamens, thick like the branches, which are 2.5 mm. long.

Mapiri, 5000 feet, May, 1886 (no. 1165). Dr. Britton regards it as identical with Lechler's no. 2171 from Peru.

Dr. Britton regards no. 1118, from near La Paz, 10,000 feet (?), April, 1885, as a variety or form of the same. Its flowers are a fourth smaller, its calyx-lobes relatively broader, and its leaves smaller.

Ruellia Lechleri grandifolia Britton, var. nov.

Petioles 5 or 6 cm. long, blades reaching 1.5 cm. or more long, 8 cm. broad, thinner: flower-bases less concealed by the upper leaves: calyx-lobes broader: pod 1.5 cm. long, broadly lance-oblong.

Yungas, 6000 feet, 1885 (no. 1116).

Sanchesia Peruviana (Nees) Rusby, Mem. Torr. Club, **6**: 102. Guanai, 2000 ft., May, 1886 (no. 1119).

Lophostachys conferta Rusby, Mem. Torr. Club, **6**: 103. Mapiri, 5000 ft., April, 1886 (no. 1114).

Eranthemum cordatum Nees; Benth. Voy. Bot. Sulph. 147. Guanai, 2000 ft., May, 1886 (no. 1168).

Lepidagathis justicioides Britton, sp. nov.

Short-pilose throughout, including the corolla: stems weakly erect, 1–3 dm. long, terete, much-branched, the branches slender, widely spreading: leaves sessile by a narrow petiole-like base, 2–4 cm. long, .75–1.5 cm. broad, oval to obovate, abruptly contracted into the narrow base, blunt at the apex, very thin, the coarse venation lightly conspicuous underneath, the secondaries about 6 pairs: spikes long and slenderly peduncled, the flowers densely arranged, leafy-bracted, the bracts oblong, 5–7 mm. long: calyx 5 mm. long, one lobe longest, oval, herbaceous, obtuse, nearly 2 mm. broad, the others linear, acute, the shorter 4 mm. long: corolla-tube, 3 mm. long, cylindraceous-infundibular, the remaining portion campanulate, 3 mm. long: lobes nearly 2 mm. long, oblong-ovate: stamens reaching to the base of the corolla-lobes: anthers .5 mm. broad, half as long, minutely mucronate: ovary oval, brown, 2 mm. long: style 3 mm. long, slender, the branches recurved.

Guanai, 2000 ft., May, 1886 (no. 2563).

Aphelandra tetragona (Vell.) Nees in DC. Prod. **11**: 295. Guanai, 2000 ft., May, 1886 (no. 1107).

Aphelandra acutifolia Nees in DC. Prod. **11**: 299 (no. 2054).

Aphelandra sp. (?) Reis, 1500 ft., June, 1886 (no. 1125). Material for dissection is wanting.

Aphelandra castanaefolia Britton, sp. nov.

Pilose with slightly ferruginous hairs, the leaves nearly glabrous: stems very stout, terete below, obtusely quadrangular above, the branchlets sharply quadrangular at the summit: petioles 1–2 cm. long, very broad and stout: blades 1.5–2.5 dm. long, 5–7 cm. broad, oblong to obovate, narrowed into the petiole, abruptly short-acuminate and acute, very coarsely serrate with spinulose teeth and rounded sinuses, coriaceous, the venation prominent on both sides, especially underneath: secondaries about 16 pairs, continued into the teeth, the venation coarsely reticulate between: bracts 1.25–2.5 cm. long, lanceolate, acuminate from the broad base and very acute, rigid: calyx 1.5 cm. long, parted nearly to the base, glabrous, coriaceous, the lobes ovate, acuminate and acute: corolla 5 cm. long, the lips nearly 2 cm. long: middle lobe of lower lip very large and broad, the lateral 1 cm. long, 2 or 3 mm. broad, oblong, very delicate, acutish, the upper lip 2-lobed, the lobes 5 mm. long, acutish: stamens equaling the upper lip, the anthers 3 mm. long: mature capsules not seen.

Yungas, 4000 ft., 1885 (no. 1098), and Mapiri, 2500 ft., May, 1886 (no. 1112).

Aphelandra Rusbyi Britton, sp. nov.

Coarsely, and the leaves sparsely, pilose: stems stoutish, terete: leaves sessile above, short-petioled below, 1–1.5 dm. long, 6–9 cm. wide, obovate, acuminate at the base, acute at the apex, the margin bearing 5 or 6 pairs of large spinulose teeth, deep-green above, pale underneath, where the venation is prominent, the 12–14 pairs of primaries very slender, continued into the teeth: spikes (in bud) short-peduncled, about 6 cm. long, 2 or 3 cm. broad, densely flowered: bracts 1.5–2 cm. long, 5–7 mm wide, exclusive of the teeth, ovate, acute, bearing long setiform teeth, 3-nerved: calyx 1.25 cm. long, parted nearly to the base, the lobes lanceolate, acuminate and acute, lightly keeled and finely nerved, pilose: flowers not seen.

Reis, 1500 ft., June, 1886 (no. 1108).

Pachystachys Riedeliana N. ab. E.; Endl. & Mart. Fl. Bras. Fasc. 7: 93. Junction of Rivers Beni and Madre de Dios, August, 1886 (no. 1099).

Pseuderanthemum Bolivianum Britton, sp. nov.

Sparsely short-pilose: branchlets elongated, slender, ascending, reddish: petioles about 5 mm. long, consisting of the narrowed leaf-bases, inserted into saucer-shaped dilations of the node: blades 3.5–7 cm. long, .75–2.5 cm. broad, lance-ovate, acuminate and acute at both ends, entire, deep-green, thin, the slender venation inconspicuous on both sides: peduncles and petioles each 3 mm. long, sharply quadrangular: calyx 6 or 7 mm. long, divided nearly to the base, the lobes narrowly linear, acuminate and acute, the tube hemispherical: corolla-tube 1.5 cm. long, very narrowly infundibular, the limb abruptly spreading, the lobes nearly 1 cm. long: capsule 2 cm. long, including the stalk, which is 1 cm. long, the body oblong, shortly and acutely pointed: seed 3 mm. long, 2.5 mm. broad, ovate, acutish, strongly flattened, 1-ribbed, strongly tuberculate.

Junction of Rivers Beni and Madre de Dios, Aug., 1886 (no. 1166).

Hansteinia crenulata Britton ex Rusby, Mem. Torr. Club, **4**: 242. Yungas, 4000 ft., 1885 (no. 1818) and Mapiri, 5000 ft., April, 1886 (no. 1103).

Beloperone Cohabambensis Rusby, Mem. Torr. Club, **6**: 103.

Guanai, 2000 ft., May, 1886 (no. 1113). The same as Bang's no. 1215.

Beloperone Bangii Rusby, Mem. Torr. Club, **6**: 104. Beni River, July, 1886 (no. 1749).

Beloperone denudata Nees; DC. Prod. **11**: 423. Guanai, 2000 ft., May, 1886 (no. 1121), and Beni River, July, 1886 (no. 1819). The same as Mathews' no. 1208.

Chaetochlamys macrosiphon Lindau, Bull. Herb. Boiss. **3**: 409. 1895. Mapiri, 2500 ft., May, 1886 (no. 1111).

Justicia laeta (Nees) Lindau, Pflanzenf. 4^{3b}: 350 (*Rhytiglossa laeta* Nees; Mart. Flor. Bras. **9**: 126). Yungas, 6000 ft., 1885 (no. 1920).

Justicia parviflora (Nees) Lindau, Pflanzenf. 4^{3b}: 350 (*Leptostachys parviflora* Nees; Mart. Fl. Bras. **9**: 151). Mapiri, 2500 ft., May, 1886 (no. 2470).

Justicia breviflora (Nees); (*Rhytoglossa breviflora* Nees; DC. Prod. **11**: 352). Falls of Madeira, Brazil, Oct., 1886 (no. 1167).

Justicia Boliviana Rusby, Mem. Torr. Club, **6**: 104. Unduavi, 8000 ft., Oct., 1885 (no. 1170). The same as Bang's no. 1225.

Justicia Rusbyana Lindau ex Rusby, Mem. Torr. Club, **4**: 243. Yungas, 6000 ft., 1885 (no. 1171). The same as Bang's 379.

Justicia (Amphicropia) longiacuminata sp. nov.

Younger portions and leaf-surfaces very sparsely coarse-pilose: branches elongated, slender, strongly recurved and apparently reclining, terete: leaves subsessile by a narrow base, 2.5–4.5 cm. long, .7–1 cm. broad, lanceolate, abruptly contracted into a narrow petiole-like base, long-acuminate and acute at the apex, entire, thickish, bright-green, the midrib lightly impressed above, prominent underneath, the strongly ascending secondaries 8 or 10 pairs, slender, the venation obscure on both sides: spike (but one seen) 2 cm. long, 1.5 cm. broad, exclusive of the flowers, dense: bracts 7–9 mm. long, 4 or 5 mm. broad, ovate, acute, bright-green, thick and rigid, the reticulated stout veins conspicuous underneath: calyx 5 mm. long, parted to the base, the lobes narrowly linear-attenuate, pilose: corolla-tube about 1 cm. long, infundibular, lightly curved, the lower lip 4 mm. long, 5 mm. broad, the lobes rounded, the upper 4 mm. long and broad, erect.

Yungas, 6000 ft., 1885 (no. 2411).

Justicia (Dianthera) Reisensis sp. nov.

Very finely white-strigose: branches slender, erect or strongly ascending, flexuous, the internodes 3 or 4 cm. long: petioles 1–2 cm. long, narrowly margined: blades 3.5–8 cm. long, 2–4 cm. broad, ovate, mostly, especially the larger, inequilateral, at the base very abruptly contracted, then tapering into the petiole, abruptly very short-pointed and obtusish at the apex, dark-green, thin, the dark venation not prominent, the strongly ascending secondaries about 6 pairs, slender: spikes .5–1 dm. long, very slender, weak, rather loosely flowered: bracts 2 or 3 mm. long, linear, thick, rigid and tightly appressed: calyx 6 or 7 mm. long, parted to the base, the divisions lance-linear, attenuate, rigid, dark-green: corolla (unexpanded) 1 cm. long, infundibular: anthers nearly 2 mm. long, the connective bright-green, the thecae overlapping, broadly oblong or oval.

Reis, 1500 feet, June, 1889 (no. 1169).

Justicia sp. The material unfit for a diagnosis Mapiri, 5000 ft., Apr., 1886 (no. 1750).

Jacobinia Rusbyi Britton, sp. nov.

Upper portions of stem and inflorescence, including the corolla, densely glandular-pubescent, the upper leaf-surfaces sparingly pilose on the veins: stems elongated, ascending, weak, coarsely and irregularly quadrangular: petioles 5–8 mm. long, consisting of the narrowed leaf-bases, inserted into small cup-shaped projections of the nodes: blades .6–1 dm. long, 3–4 cm. broad, oval to ovate, abruptly acuminate and acute at both ends, entire, thin, deep-green above, yellowish underneath (as dried), the 10 or 12 pairs of secondaries very slender, strongly incurved, prominent both sides, especially underneath: panicle long-peduncled, the flowering portion about 1 dm. long and broad, loosely flowered: bracts 3–5 mm. long, broadly ovate, acute: calyx about 7 mm. long, parted nearly to the base, the lobes oblong ovate, acutish; corolla about 4 cm. long, narrowly infundibular, nearly straight, the lips 1.5 cm. long: stamens about equaling the upper lip, the anther nearly 4 mm. long, the large, thickened connective blackish, thecae nearly 2 mm. long, one reaching nearly to the base of the other, acuminate at the base.

Yungas, 6000 ft., 1885 (no. 2404).

VERBENACEAE

Lantana trifolia L. Sp. Pl. 626. Guanai, 2000 ft., May, 1886 (no. 921).

Lantana velutina Mart. et Gal. Bull. Acad. Brux. **1**: 325. Yungas, 6000 ft., 1885 (nos. 922 and 923).

Lantana lilacina Desf. Cat. Hort. Par. ed. 3, 392. Sorata, 8000 ft., Feb., 1886 (no. 925).

Lantana tiliifolia Cham. Linnaea, **7**: 122. 1832. Guanai, 2000 ft., May, 1886: (924).

Lippia vernonioides Cham. Linnaea, **7**: 232. 1832. Guanai, 2000 ft., May, 1886 (no. 926), and Reis, 1500 ft., June, 1886 (no. 927).

Lippia betulifolia H.B.K. Nov. Gen. et Sp. **2**: 264. Junction of Rivers Beni and Madre de Dios, Aug., 1886, and Falls of Maderia, Brazil, Oct., 1886 (no. 917).

Lippia scorodonoides H.B.K. Nov. Gen. et Sp. **2**: 269. Vic. La Paz, 10000 ft., Apr., 1885 (no. 920).

Lippia urticoides (Cham.) Steud. Nom. (ed. 2,) **2**: 54 B. (*Aloysia urticoides* Cham. in Linnaea, **7**: 238. 1832. Guanai, 2000 ft., May, 1886 (no. 1403).

Bouchea Ehrenbergii Cham. Linnaea, **7**: 253. 1832. Junction of Rivers Beni and Madre de Dios, Aug., 1886 (no. 915). The same as Holton's no. 505.

Valerianodes Cayennensis (Vahl) Kuntze, Rev. Gen. Pl. 510 (*Stochytarpheta Cayennensis* Vahl Enum. **1**: 208). Reis, 1500 ft., June, 1886 (no. 914).

Priva cuneato-ovata (Cav.); (*Castelia cuneato-ovata* Cav.; Anal. Cienc. Nat. **3**: 134. 1801. *Priva laevis* Juss. in Anal. Mus. Par. **7**: 70. 1806.) Tacna, Mar., 1885 (no. 2531).

Priva lappulacea (L.) Pers. Ench. **2**: 139. Vic. La Paz, 10000 ft., Apr., 1885 (no. 1785), and Junction of Rivers Beni and Madre de Dios, Aug. 1886 (no. 1784). The same as Holton's no. 496.

Verbena minima Meyen Reise **1**: 451. Unduavi, 10000 ft., Oct., 1885 (no. 2670). Also collected by Mandon.

Verbena littoralis H.B.K. Nov. Gen. **2**: 276. Tacna, Mar., 1889 (nos. 910, 912 and 913), Yungas, 4000 ft., 1885 (no. 907), Sorata, 8600 ft., Feb., 1886 (no. 911), Beni River, July, 1886 (no. 908).

Verbena hispida R. & P. Fl. Per. **1**: 22. *pl. 34. f. a.* Tacna, Mar. 1885 (no. 909).

Petrea bracteata Steud. Flora. 764. 1843. Beni River, July, 1886 (no. 933), and Junction of Rivers Beni and Madre de Dios, Aug. 1886 (no. 932).

Citharexylon ilicifolium H.B.K. Nov. Gen. et Sp. **2**: 256. Sorata, 10000 ft., Feb., 1886 (no. 2058).

Citharexylon spicatum sp. nov.

Ferruginous-tomentose, the upper leaf-surfaces sparsely short-pilose: stems stout, erect, terete, the internodes 4–5 cm. long: petioles 4–8 mm. long, stout: blades .75–1.25 dm. long, 3–5 cm. broad, lance-ovate, rounded at the base, abruptly contracted into a tapering, acute apex, thickish, rigid, dark-green above, yellowish underneath, with the coarsely reticulate venation prominent, the secondaries 10–12 pairs, connecting about two-thirds of the way from the midrib to the margin: peduncle stout, 2–3 cm. long, the loose compound spike 4–5 cm. long: flowers sessile, the calyx campanulate, nerved, 4 mm. long, 3 mm. broad, the lobes about 1 mm. long, 1.5 mm. broad, triangular-ovate: corolla thick, purple, 5–7 mm. long, the tube cylindraceous, the abruptly spreading or recurved limb 4–5 mm. broad.

Yungas, 6000 ft., 1885 (no. 2701).

Aegiphila tomentosa Cham. in Linnaea, **7**: 110. Reis, 1500 ft., June, 1886 (no. 2516).

Aegiphila arborescens (Aubl.) Vahl, Ecl. **1**: 15. Yungas, 4000 ft., 1885 (no. 2458). Probably also no. 2459.

Aegiphila oblongifolia sp. nov.

Minutely puberulent: stems very slender and weak, coarsely angular: petioles 5–7 mm. long, weak: blades 1–1.5 dm. long, 2–6 cm. broad, oblong, acuminate at the base, abruptly acuminate and obtuse at the apex, entire, very thin, dark-green, venation very slender, inconspicuous on both sides, the secondaries about 15 pairs: panicles 5 or 6 cm. long and broad, loosely flowered: bracts linear, very small: pedicels 2–4 mm. long, slender: calyx 4 mm. long and broad, campanulate, the margin truncate, obscurely sinuate: corolla-tube 3 mm. long, cylindraceous, the lobes 5 mm. long, 3 mm. broad, oval: stamens equaling the corolla-lobes, the filaments very slender, the blackish anthers 1 mm. long, triangulate: ovary globoidal, 1 mm. long: fruit 8 or 9 mm. long, nearly as broad, truncate, strongly lobed.

Reis, 1500 ft., June, 1886 (no. 2472) and Junctions of Rivers Beni and Madre de Dios, Aug. 1886 (no. 2473).

Vitex triflora Vahl Eclog. **2**: 49. Junction of Rivers Beni and Madre de Dios, Aug. 1886 (no. 1027).

Clerodendron aculeatum (L.) Griseb. Fl. Brit. W. Ind. 500 (*Volkameria aculeata* L. Sp. Pl. 637). Falls of Madeira, Brazil, Oct., 1886 (no. 2572).

Clerodendron Bolivianum sp. nov.

Densely and shortly ferruginous-tomentose, the leaves pubescent on the veins: stems very stout, obtusely quadrangular: branchlets short, stout, widely spreading, leafy: petioles about 1 cm. long: blades 3–6 cm. long, 2–3 cm. broad, obovate, abruptly tapering into the petiole, rounded at the apex, entire, thickish, the venation impressed and short-pubescent above, coarse, slightly prominent and strongly pubescent underneath, the secondaries about 6 pairs, strongly ascending: flowers pendulous, 3–5-fascicled, the fascicles sessile or short-peduncled: pedicels 3–5 mm. long: calyx turbinate-campanulate, 3 mm. long, 4 or 5 mm. broad, thick, ferruginous without, deep-purple within, the lobes about 1 mm. long, recurved: corolla deep-purple, the tube nearly 2 cm. long, slenderly infundibular, the strongly recurved lobes 5–7 mm. long, broadly ovate: filaments slender, reaching about 3 mm. beyond the corolla-tube, the strongly curved anthers oblong, about 3 mm. long.

Unduavi, 8000 ft., Oct. 1885 (no. 2619).

LABIATAE.

Ocimum micranthum Willd. Enum. Hort. Berol. 630. Mapiri, 5000 ft., Apr., 1886 (no. 1811), and Yungas, 6000 ft., 1885 (no. 2440).

Marsypianthes Chamaedrys (Vahl) Rusby, Mem. Torr. Club, **4**: 245. Mapiri, 5000 ft., Apr., 1886 (no. 1748), and Reis, 1500 ft., June (no. 1412). The same as Spruce's, no. 6514.

Mesosphaerum affine (Benth.) Kuntze, Rev. Gen. Pl. 526 (*Hyptis affinis* Benth. Lab. Gen. et Sp. 109). Reis, 1500 ft., June, 1886 (no. 1413).

Mesosphaerum capitatum (Jacq.) Kuntze, Rev. Gen. Pl. 525 (*Hyptis capitata* Jacq. Coll. **1**: 102, Ic. Rar. 1: *pl. 114*). Mapiri, 2500 ft., May, 1886 (no. 918), and Junction of Rivers Beni and Madre de Dios, Aug. 1886 (no. 1391).

Mesosphaerum eriocephalum (Benth.) Kuntze, Rev. Gen. Pl. 526. Sorata, 8000 ft., Feb., 1886 (no. 1404). The same as Bang's no. 976.

Mesosphaerum excelsum (Mart. et Gal.) Kuntze, Rev. Gen. Pl. 526 (*Hyptis excelsa* Mart. et Gal. in Bull. Acad. Brux. 11, **2**: (1844) 188. Reis, 1500 ft., June, 1886 (nos. 928 and 1783).

Mesosphaerum lantanifolium (Poit.) Kuntze, Rev. Gen. Pl. 526 (*Hyptis lantanifolia* Poit. Ann. Mus. Par. **7**: 468. *pl. 29*). Mapiri, 5000 ft., Feb., 1886 (no. 1408). Apparently a badly developed plant of this species.

Mesosphaerum odoratum (Benth.) Kuntze, Rev. Gen. Pl. 526. Yungas, 6000 ft., 1885 (no. 1417). The same as Bang's no. 270a.

Mesosphaerum recurvatum (Poit.) Kuntze, Rev. Gen. Pl. 527 (*Hyptis recurvata* Poit. in Ann. Mus. Par. **7**: 467. *pl. 28. f. 1.* 1806). Reis, 1500 ft., June, 1886 (no. 1392).

Mesosphaerum spicatum (Poit.) (*Hyptis spicata* Poit. in Ann. Mus. Par. **7**: 474. *pl. 28. f. 2.* 1806). Mapiri, 5000 ft., Apr., 1886 (no. 1393). Reis, 1500 ft., June, 1886 (no. 1395). Guanai, 2000 ft., May, 1886 (no. 1394) and Sorata, 8000 ft., Feb., 1886 (no. 1409).

Mesosphaerum uncinatum (Benth.) Kuntze, Rev. Gen. Pl. 527 (*Hyptis uncinata* Benth. Lab. Gen. et Sp. 80). Mapiri, 5000 ft., Apr., 1886 (no. 1396). The same as Bang's no. 1236.

Mesosphaerum Yungasense Britton ex Rusby, Mem. Torr. Club, **4**: 246. Yungas, 6000 ft., 1885 (no. 1410).

Mentha aquatica L. Sp. Pl. 576. Vic. Valparaiso, Chili, June, 1885 (no. 1062).

Mentha Pulegium L. Sp. Pl. 577. Near Valparaiso, Chili, June, 1885.

Bystropogon canus Benth. Lab. 326. Vic. La Paz, 10000 ft., February, 1885 (no. 1406).

Bystropogon mollis H.B.K. Nov. Gen. et Sp. **2**: 317. Unduavi, 8000 ft., October, 1885 (no. 1499).

Bystropogon andinum Britton, sp. nov.

Finely and closely tomentellate throughout: branchlets numerous, divaricate, elongated, very slender, reddish, the internodes about 2 cm. long: petioles 2–3 mm. long, very slender, chan-

nelled above: blades 5–8 mm. long, 4–7 mm. broad, ovate, varying to oval, rounded and very slightly produced at the base, obtuse, obscurely sparse-serrate, thickish, grayish-green: venation obscure above, prominent underneath: clusters short-peduncled, mostly about 5-flowered, occasionally 10-flowered: flowers sessile: calyx 2.5 mm. long, campanulate, faintly nerved, the lobes .5 mm. long, ovate, acute: corolla 2 mm. long, the tube about as long as the limb, the lobes spreading or reflexed, subrotund.

Vic. La Paz, 10000 ft., April, 1885 (no. 1398). The same as Mandon's no. 515.

Micromeria Boliviana Benth. Lab. Gen. et Sp. 731. Unduavi, 10000 ft., October, 1885 (no. 1500). The same as Mandon's nos. 717 and 718.

Hedeoma Mandoniana Wedd. Chlor. And. **2**: 148. Sorata, 10000 ft. and 13000 ft., February, 1886 (nos. 1497 and 1498).

Gardoquia obovata R. & P. Syst. Veg. 150. Near Valparaiso, Chili, June, 1885 (no. 1061).

Alguelagum tenuiflorum (Benth.) Kuntze, Rev. Gen. Pl. 512 (*Sphacele tenuiflora* Benth. in DC. Prod. **12**: 257). Sorata, 10000 ft., February, 1886 (no. 1407), and Unduavi, 8000 ft., October, 1885 (no. 1411). The same as Mandon's no. 720.

Alguelagum Salviae (Lindl.) Kuntze, Rev. Gen. Pl. 512 (*Stachys Salviae* Lindl. Bot. Reg. *pl. 1226*; *Sphacele Lindleyi* Benth. in Bot. Reg. Sub. *pl. 1289*). Near Valparaiso, Chili, June, 1885 (no. 1399).

Alguelagum salviifolium (H.B.K.) Kuntze, Rev. Gen. Pl. 512 (*Sideritis salviifolium* H.B.K. Nov. Gen. et Sp. **2**: 307). Sorata, 8000 ft., Feb., 1886 (no. 1416). The teeth are narrower than in Bang's no. 1108.

Alguelagum confertum (Benth.) Kuntze, Rev. Gen. Pl. 512 (*Sphacele conferta* Benth. Pl. Hartw. 244). Unduavi, 8000 ft., Oct., 1885 (no. 1415). The same as Bang's no. 689.

Salvia Rusbyi Britton ex Rusby, Mem. Torr. Club **4**: 247. Yungas, 6000 ft., 1885 (no. 2414). The same as Bang's no. 422.

Salvia tiliifolia Vahl Symb. **3**: 7. Yungas, 6000 ft., 1885 (no. 1402). The same as Bang's no. 310.

Salvia occidentalis Sw. Prod. Veg. Ind., Dec. 14. Vic. La Paz, 10000 ft., April, 1885 (no. 1414).

Some Monstrosities in Spikelets of Eragrostis and Setaria

By W. J. Beal

In central Michigan we usually have a severe frost by September 5th–15th, but in 1898, it was delayed until about October 7th. This unusual delay of frost with warm weather and moisture enough was favorable for late growth of some plants.

On October 6th, I found a few plants of *Eragrostis major* Host., a common weed among grasses, which had apparently, like most others of its kind, made plans for closing its season of growth early in September, maturing spikelets 6 mm. long with 12–18 florets well filled with grain, but before drying up and dying—the weather was so fine—a new growth of the rachilla was made prolonging the axis to 17 mm. with 32 florets (Fig. 4), more than double the original length (Fig. 3). This new growth was not able to mature grain.

The first growth was broad and faded; the new was slender and olive green, making a sharp contrast in appearance.

Fig. 1, 2. *Chamaeraphis viridis.* 3, 4. *Eragrostis major.*

An increased number of florets has been recorded by others in *Hordeum*, *Lolium*, *Avena* and *Catabrosa*, but I have seen no account of this in *Eragrostis major*. From countries with warmer

seasons, I have heard of spikelets of *Eragrostis major* containing as many as 50 florets on an axis 20 mm. long.

The spikelets of *Chamaeraphis* (*Setaria*) *viridis* (L.) Porter, bear 1–5 persistent, awnlike, barren branches or bristles.

In October, 1898, in rich ground, I found several thrifty plants of this species, in which a considerable number of the upper bristles bore at the apex, each a spikelet, and in one case, a spikelet was borne on the side of a bristle about two-thirds the distance from the base to the top (Fig. 2). The specimens with spikelets on the bristles confirm the statement, if it needs any further confirmation, that these bristles are actually branches and not mere hairs.

Notes on Cabomba Caroliniana A. Gray

BY W. J. BEAL

Perhaps it is ten years ago that I bought some small plants of this species of the water-lily family and placed in a small pond in the botanic garden. Nothing seemed to come of them, and they were given up for lost. In four years, there appeared some plants in considerable quantity in the center of a larger pond below and connected with the one where the *Cabomba* had been planted. I supposed it was something else, but found the flowers to be those of the long-lost *Cabomba*. It spreads, and is inclined to take complete possession of the lower ground, mixing in and crowding the water lilies which were previously well established.

Notes on Some Southwestern Plants

By T. D. A. Cockerell

Kallstroemia grandiflora Arizonica n. var.

On October 9, 1899, I observed that the plants of *K. grandiflora*, growing abundantly by the roadside and in waste places at Phoenix, Arizona, were easily separable into two forms, one of them the genuine *grandiflora*, the other undescribed. I tabulated the characters thus:

K. GRANDIFLORA	**Arizonica** n. var.
Flower 30 mm. in diam. (*i. e.*, the cup of the living flower).	Flower 20 mm. in diam.
Pistil 9 mm. long.	Pistil shorter, 6 mm. and stouter in proportion to its length. Filaments shorter.
Sepals 12 mm.	Sepals 8 mm.
Peduncles 34–43 mm.	Peduncles 14–22 mm.
Leaves rather paler: leaflets longer in proportion to breadth, second pair 8–10.5 mm. long, 3–3.5 broad.	Leaves rather darker: leaflets (second pair) 6–8 mm. long, 3–4 broad.
Beak of fruit much longer (10 mm.) and not so thick.	Beak of fruit shorter (8 mm.) and stouter.

My first opinion was that these were clearly distinct species, but without being able to prove one thing or the other, I now incline to the opinion that *Arizonica* should be considered a variety or dimorphic form of *grandiflora*.

Holacantha Emoryi Gray

At Buckeye, Arizona, in October, I found a plant growing close to a ditch, and, apparently as the result of the unusual moisture, putting forth numerous narrow leaves, 15 mm. long. Dr. B. L. Robinson tells me that Mr. Pringle also collected the plant in this condition.

Malvastrum dissectum (Nutt.)

Sida dissecta Nutt.; Torr. & Gray, Fl., i. p. 235.

At Las Vegas, N. M., I found *M. dissectum* growing commonly,

and at the same place plenty of *M. coccineum*, which is a very distinct plant. In Wet Mountain Valley, Colorado, *M. dissectum* was common, and passed for *M. coccineum*, which was not found there. In addition to the taller growth and very different leaves of *M. coccineum*, there is a difference in the lobes of the calyx, which in *dissectum* have short linear reddish tips, wanting in *coccineum*.

M. dissectum in the young state of the fruit has two ovules in each carpel, but one aborts, or not rarely both. Thus the distinction between *Malvastrum* and *Sphaeralcea* must rest not so much on the number of ovules as on their condition when mature: in the former genus closely adherent to the carpel wall, in the latter free and pubescent. It is unfortunate that the use of the name *dissectum* in a specific sense will interfere with the South African *M. dissectum* Harv.; in Harv. & Sond., Fl. Cap. **1**: 164.

Sphaeralcea lobata perpallida n. var.

Flowers very pale pinkish instead of scarlet. This occurs as a sport in the Mesilla Valley, N. M., but from Rincom, N. M., twenty miles or more northward along the railroad, it occurs abundantly to the exclusion of the type. *S. lobata* (typical form) occurs as high up as Las Vegas, N. M., in abundance. *S. cuspidata* (Gray) is common at the same place, and very distinct from *lobata*. The pollen of *cuspidata* is pale lemon-yellow, that of *lobata* bright orange.

PROSOPIS VELUTINA Wooton

I found this common throughout the Salt River Valley, Arizona, and at Buckeye. At the last mentioned place it grows to a tree of very fair size.

ROSA ARKANSANA SUFFULTA=*R. suffulta* Greene, Pittonia, **4**: 12

I found this abundant at Las Vegas, between the town and the Hot Springs. The stipular leaflets are as described by Greene.

VERBENA MACDOUGALII Heller

This is extremely common at Las Vegas, N. M., and I had noticed that it did not agree with the description of *V. stricta*. The following bees were observed to visit its flowers at Las Vegas and the vicinity:

Anthophara (*Amegilla*) *cardui* Ckll., 1 ♂, Hot Springs, Aug. 10, W. Porter.

Anthophara (*Amegilla*) *cleomis* Ckll., 1 ♂, Las Vegas, July 20, W. Porter.

Anthophara maculifrons Cresson, 4 ♂, 2 ♀, Las Vegas, Aug. 9, W. Porter.

Calliopsis verbenae Ckll. & Porter, Several ♂, ♀, Las Vegas, Aug. 9, W. Porter.

Halictus tegularis Rob., 1 ♀, Hot Springs., Aug. 10, W. Porter.

Megachile fidelis Cresson, ♂, Las Vegas, July 6–19, Porter and Ckll.

Megachile fortis Cresson, 1 ♂, Hot Springs, Aug. 10, W. Porter.

Melissodes grindeliae Ckll., 1 ♀, Las Vegas, July 19, W. Porter.

Melissodes pallidicincta Ckll., 1 ♀, Las Vegas, July 6–11, M. Winters and Ckll.

Also two or three species of *Megachile* not yet determined.

DELPHINIUM CAMPORUM Greene, var.

Las Vegas, N. M., July 20, 1899 (*M. Winters* and *N. Stern*). This plant seems not to agree wholly with the described forms: it is about three feet high, with tall spikes a foot long, with very numerous flowers: leaves with linear divisions. The flowers are glabrous, but with a lens one can see a short pubescence on the spurs and peduncles. Sepals greenish-white: lower petals violet, bearded with yellow hairs: upper petals white, outwardly stained at apex with purple, and lower with blue: anthers purplish: filaments ringed with deep blue just below the anthers.

UROMYCES COMPACTUS Peck (det. Ellis and Peck)

Mesilla, N. M., Nov. 1897. I found this abundantly on the stems of *Aster spinosus*: it was originally described as from an unknown composite.

MESILLA PARK, N. M., Dec. 15, 1899.

Proceedings of the Club

TUESDAY EVENING, DEC. 12, 1899

President Brown in the chair, 33 persons present. Two new members were elected. Dr. D. T. MacDougal, Botanical Garden, N. Y., and Miss Anna F. Thompson, Summit, N. J.

The scientific program was opened by a paper by Dr. L. M. Underwood, "On the Genera of the Schizaeaceae."

Dr. Underwood explained the peculiar characters of the sporangium by which the Schizaeaceae are distinguished, illustrating with figures, and then sketching the history of the order. Linnaeus put its species under *Acrostichum* and *Osmunda;* Richard was the first to begin segregation, erecting in 1792, the genus *Lophidium.* In 1793, *Schizaea* was founded by Smith on a South African plant common through the Transvaal region, quite similar to our own species of New Jersey. Wallich founded another genus, *Actinostachys,* in 1822, on an East Indian form. Dr. Underwood considered these three genera to be valid, though recent German systematists, as Prantl, have not recognized them.

Swartz constituted another genus in 1800, *Mohria,* from Cape Colony, of which only one species is known. *Lygodium,* our best known genus, was established by Swartz in 1800, and includes one well-known Atlantic species, *L. palmatum,* the Climbing-fern.

Several other genera, as *Anemia* and *Trochopteris,* were discussed, with remarks on principal species. About 90 species of the order have been published, largely American and tropical, especially the abundant Brazilian forms of *Anemia* and allies.

Professor Lloyd suggested the interest attaching to *Trochopteris* as possibly a very primitive form.

Dr. Underwood said it is sparsely represented from Brazilian collections, perhaps because of its small size and habit of growth close to the ground, the largest specimen known being only three inches in diameter.

The second paper was by Dr. D. T. MacDougal, "Studies on *Hexalectris.*" This rare Southern orchid is of great interest on

account of its supposed near relationship to *Corallorhiza*, which develops short coralloid outgrowths without roots, but producing a mycorhiza and sending out hyphae into the soil. Material of *Hexalectris* from Alabama, although possessed of somewhat similar coralloid growths, was found to contain no fungi, and to be without apparent adaptation to growth by mycorhiza. No one seems to have seen the roots of this plant.

The third paper was by Dr. N. L. Britton, "Notes on Species of *Crataegus*."

Dr. Britton exhibited and discussed 34 species of the northeastern United States, and remarked upon the great need of persistent field-study in determining this genus. One must have flowers, mature leaves and mature fruit from any individual bush before he can begin to find its relationship to any other form. The most difficult part of the genus is perhaps the *C. tomentosa* group. Many southern species have recently been found to extend their range into Virginia, as *C. Chapmani*, *C. Carolina*, etc.; and others into Missouri, as *C. berberifolia*. The identity of the original of *C. coccinea* of Linnaeus proves to have a special local interest. Linnaeus seems to have had, as often, no specimen before him, but based his description on a plate of Plunkenet and another of Ray. Few herbarium specimens correspond well to the figure, which answers only to leaves of a shrub collected twice near New York, once by Mr. E. P. Bicknell along the Harlem River, and once by the late Professor E. H. Day on Persimmon Island, near New Rochelle, N. Y. The leaves bear a remarkable resemblance to those of *Betula nigra*. Search for similar specimens near New York should be made; the leaves are longer, and with blunter, shallower lobes than in the commonly-received *C. coccinea*.

Dr. Britton is endeavoring to get together at the Botanical Garden a collection of these species, and has now a dozen or more; but the wild stock is very difficult to grow and is impatient of transplanting. Most gardeners graft or grow from seed.

EDWARD S. BURGESS,
Secretary.

Index to recent Literature relating to American Botany

This Index is intended to include (1) Titles of all papers and books relating to American plants; (2) All papers on botanical subjects by American botanists; (3) Papers of special interest relating to physiological or morphological subjects wherever published. Botanists can aid greatly in this matter by the contribution of separates of their papers especially those published outside the usual botanical journals, such as the publications of learned societies, experiment station bulletins and reports, and journals only occasionally containing botanical matter.

The titles are reprinted monthly on standard library cards of two widths, and are sold to subscribers at the price of one cent per card.

The editors will welcome any notice of omitted titles or other suggestions relative to the greater efficiency of the Index. Address all matters relating to the Index to The Torrey Botanical Club, Columbia University, New York City.

Anderson, F. M. *Picea Breweriana.* Erythea, 7: 176. 31 D. 1899.

Beadle, C. D. Studies in *Crataegus.*—I. Bot. Gaz. **28**: 405–417. 10 Ja. 1900.

Crataegus Biltmoreana, C. Sargenti, C. Boyntoni, C. austromontana, C. Harbisoni, C. silvicola, and *C. Mohri,* sp. nov.

Boodle, L. A. Stem-structure in Schizaeaceae, Gleicheniaceae, and Hymenophyllaceae. Ann. Bot. **13**: 624, 625. D. 1899.

Butters, F. K. Observations on *Rhodymenia.* Minn. Bot. Stud. **2**: 205–213. *pl.* 2. 29 D. 1899.

Campbell, D. H. A peculiar Embryo-sac in *Peperomia pellucida.* Ann. Bot. **13**: 626. D. 1899.

Clark, A. M. The Trees of Vermont. Bull. Vermont Agric. Exper. Sta. 73: 35–86. O. 1899. [Illust.]

Clark, J. F. On the toxic Effect of deleterious Agents on the Germination and Development of certain filamentous Fungi. Bot. Gaz. **28**: 289–327. 30 N. 1899; 378–404. 10 Ja. 1900.

Clute, W. N. Two new Stations for *Schizaea pusilla*. Fern Bull. **8**: 15, 16. Ja. 1900.

Darwin, F. On Geotropism and the Localization of the sensitive Region. Ann. Bot. **13**: 567–574. *pl. 79*. D. 1899.

Davenport, G. E. John Williamson. Fern Bull. **8**: 1–5. *portrait*. Ja. 1900.

Davis, K. C. A synonymic Conspectus of the native and garden Aconitums of North America. Minn. Bot. Stud. **2**: 345–352. 29 D. 1899.

Davis, K. C. A synonymic Conspectus of the native and garden Aquilegias of North America. Minn. Bot. Stud. **2**: 331–343. 29 D. 1899.

Dyer, W. T. T. On the Influence of the Temperature of liquid Hydrogen on the germinative Power of Seeds. Ann. Bot. **13**: 599–607. D. 1899.

Eastwood, A. Another introduced Plant. Erythea, **7**: 176. 31 D. 1899.

Linaria reticulata aurea-purpurea at Santa Maria, Cal.

Eastwood, A. Migratory Plants in Alameda County [California]. Erythea, **7**: 175, 176. 31 D. 1899.

Eastwood, A. Short Articles. Erythea, **7**: 149, 150. 30 N. 1899.

Includes notes on "Introduced Plants in Placer County, California," "Sedge used in Indian Basket-making," and "Mr. Hendrie's gifts to the California Academy of Sciences."

Eaton, A. A. Two new *Isoetes*. Fern Bull. **8**: 12–14. Ja. 1900.

I. Macounii and *I. Orcutti*, new.

Eggleston, W. W. *Woodsia alpina*. Fern Bull. **8**: 5, 6. Ja. 1900.

Fernald, M. L. Three new western Plants. Erythea, **7**: 121, 122. 30 N. 1899.

Carex Blankinshipii, *Amelanchier Cusickii*, and *Castilleia Dixoni*.

Fink, B. Contribution to the Knowledge of the Lichens of Minnesota. IV. Lichens of the Lake Superior Region. Minn. Bot. Stud. **2**: 215–276. 29 D. 1899.

Fink, B. Contributions to the Knowledge of the Lichens of Minnesota. V. Lichens of the Minnesota Valley and Southwestern Minnesota. Minn. Bot. Stud. **2**: 277–329. 29 D. 1899.

Includes *Pyrenula megalospora*, new species.

Freeman, E. M. Observations on *Chlorochytrium*. Minn. Bot. Stud. **2**: 195–204. *pl. 19*. 29 D. 1899.

Gilbert, B. D. Some hitherto unnoted Variations of familiar Ferns. Fern Bull. **8**: 9–11. Ja. 1900.

Graves, C. B. Connecticut Stations for *Asplenium montanum*. Fern Bull. **8**: 18, 19. Ja. 1900.

Graves, H. S. Practical Forestry in the Adirondacks. Bull. U. S. Dept. Agric. (Div. Forestry), 26: 1–84. *pl. 1–20*. O. 1899.

Greenman, J. M. Northwestern Plants, chiefly from Oregon. Erythea, **7**: 115–120. 30 N. 1899.

Spiraea discolor glabrescens, *Oxytropis Cusickii*, *Conanthus parviflorus*, *Mertensia umbratilis*, *Lophanthus Cusickii*, and *Mimulus* (*Eunanus*) *clivicola*, new species and variety; also notes on other species.

Griffon, E. L'assimilation chlorophyllienne. Ann. Sci. Nat. VIII. **10**: 1–123. *pl. 1–4*. S. 1899.

Harper, R. A. Cell-division in Sporangia and Asci. Ann. Bot. 13: 467–525. *pl. 24–26*. D. 1899.

Hedgcock, G. C. & **Hunter, A. A.** Notes on *Thorea*. Bot. Gaz. **28**: 425–429. *pl. 26*. 10 Ja. 1900.

Hitchcock, A. S. Note on Corn Smut. Bot. Gaz. **28**: 429, 430. 10 Ja. 1900.

Holmboe, J. En fjeldform af *Capsella Bursa-pastoris*. Bot. Notiser. 1899: 261–266. 1899.

Holzinger, J. M. *Talinum rugospermum* n. sp. Asa Gray Bull. **7**: 115–117, *f. 1*. D. 1899.

Hume, H. H. Some Peculiarities in *Puccinia* Teleutospores. Bot. Gaz. **28**: 418–423. 10 Ja. 1900. [Illust.]

Hyams, C. W. A new *Lilium*. Bot. Gaz. **28**: 431. 10 Ja. 1900.

Lilium Masseyi Hyams.

Jepson, W. L. Biographical Sketch of H. G. Bloomer. Erythea, **7**: 163–166. 31 D. 1899.

Jepson, W. L. Early scientific Expeditions to California. II. Erythea, **7**: 129–134. 30 N. 1899.

Jepson, W. L. Epitaph of David Douglas. Erythea, **7**: 174, 175. 31 D. 1899.

Jepson, W. L. Teratology of *Scrophularia Californica*. Erythea, **7**: 123–127. *pl. 4*. 30 N. 1899.

Knapp, S. A. The present status of Rice Culture in the United States. Bull. U. S. Dept. Agric. (Div. Bot.) 22: 1–56. *pl. 1–3*. 1899.

Kofoid, C. A. Plankton Studies—III. On *Platydorina* a new Genus of the Family Volvocidae, from the Plankton of the Illinois River. Bull. Ill. State Lab. Nat. Hist. **5**: 419–440. *pl. 38.* 28 D. 1899.
Platydorina caudata sp. nov. Synopsis of species of subfamily Volvocinae.

Kränzlin, F. *Rodriguezia Juergensiana* n. sp. Notizbl. konigl. bot. Garten zu Berlin **2**: 377, 378. 29 D. 1899.
From Brazil.

MacDougal, D. T. Studies in Plant Physiology—IV. Asa Gray Bull. **7**: 110–114. D. 1899.

MacMillan, C. A botanical Art Gallery. Bot. Gaz. **28**: 430, 431. 10 Ja. 1900.

Meehan, T. *Hibiscus militaris.* Meehan's Monthly, **9**: 161, 162. *pl. 11.* N. 1899.

Meehan, T. *Oxybaphus hirsutus.* Meehan's Monthly, **9**: 177, 178. *pl. 12.* D. 1899.

Meehan, T. *Sanguinaria Canadensis.* Meehan's Monthly, **10**: 1, 2. *pl. 1.* Ja. 1900.

Moore, G. T. Algae as a Cause of the Contamination of Drinking Water. Am. Jour. Pharm. **72**: 25–36. Ja. 1900.

Morgan, A. P. The Myxomycetes of the Miami Valley, Ohio. Journ. Cin. Soc. Nat. Hist. **19**: 147–166. 4 Ja. 1900.

Nelson, E. Some new Western Species. Erythea, **7**: 166–170. 31 D. 1899.
Valeriana micrantha, V. Wyomingensis, Phlox Whitedii, Saxifraga saximontana, and *S. subapetala,* proposed as new by the author.

Nelson, A. Some Rocky Mountain Chrysothamni. Bot. Gaz. **28**: 369–377. 10 Ja. 1900.
Chrysothamnus pulcherrimus, C. pulcherrimus fasciculatus, C. frigidus concolor, C. pallidus, C. Wyomingensis, C. affinis, C. oreophilus, C. pumilus varus, and *C. pumilus acuminatus,* sp. et var. nov.; *C. affinis attenuatus* (Jones), nom. nov.

Palmer, T. C. *Isoetes Dodgeii*—a new Station. Fern Bull. **8**: 6–8. Ja. 1900.

Peck, C. H. Report of the State Botanist, 1898. Bull. N. Y. State Mus. **5**: 619–688. *pl. 57–61.* O. 1899.
New species in *Lepiota, Marasmius, Clitopilus, Hebeloma, Gomphidius,* and *Polyporus.* Descriptions and illustrations (colored) of twelve edible fungi.

Piper, C. V. A new California *Parnassia.* Erythea, **7**: 128. 30 N. 1899.
Parnassia cirrata Piper.

Piper, C. V. New and noteworthy Northwestern Plants.—II. Erythea, 7: 159–163;—III. 7: 171–174. 31 D. 1899.

Mitella stauropetala, *M. stenopetala*, *M. stenopetala Parryi*, *M. micrantha*, *M. anomala*, *Spiraea cinerascens*, *S. Hendersoni* (Canby), *S. uniflora* (Wats.), *Boykinia major intermedia*, *Rudbeckia alpicola*, *Senecio Elmeri*, and *Polemonium amoenum*, new species, varieties and names.

Rothrock, J. T. Red Oak (*Quercus rubra* L.). Forest Leaves, 7: 88. D. 1899. [Illust.]

Rusby, H. H. An Enumeration of the Plants collected by Dr. H. H. Rusby in South America, 1885–1886.—XXVI. Bull. Torr. Bot. Club, **26**: 145–152. 18 Mr. 1899;—XXVII., **26**: 189–200. 12 Ap. 1899.

New species, varieties and names in *Cordia*, *Saccellium*, *Tournefortia*, *Heliotropium*, *Ipomoea*, *Jacquemontia*, *Solanum*, *Cyphomandra*, *Physalis*, *Bassovia*, *Brachistus* and *Solandra*.

Rydberg, P. A. What is *Prunus insititia*? Bot. Gaz. **28**: 423–425. 10 Ja. 1900.

Saunders, C. F. *Dryopteris simulata* in Pennsylvania. Fern Bull. **8**: 14, 15. Ja. 1900.

Scribner, F. L. New or little-known Mexican Grasses. Circ. U. S. Dept. Agric. (Div. Agrost.) 19: 1–4. *f.* 1. 2 Ja. 1900.

New species in *Panicum* (3) and *Avena* (2).

Shear, C. L. A Truffle from Maryland. Asa Gray Bull. 7: 118. D. 1899.

Terfezia oligosperma Tul.

Shear, C. L. Our Puff balls.—II. Asa Gray Bull. 7: 105–110. *pl.* 7. D. 1899.

Synopsis and descriptions of American species adapted from Saccardo.

Stephani, F. Species Hepaticarum. Bull. Herb. Boiss. 7: 84–110. 16 F. 1899; 198–225. 25 Mr. 1899; 381–407. 31 My. 1899; 518–533. Jl. 1899; 655–695. S. 1899; 727–764. O. 1899.

Includes descriptions of the following new species from America: *Fimbriaria atrispora*, *F. Macounii*, *F. commutata*, *F. alpina*, *Aneura autoica*, *A. intermedia*, *A. alata*, *A. Portoricensis*, *A. Corralensis*, *A. spectabilis*, *A. Negeri*, *A. conimitra*, *A. metzgeriaeformis*, *A. tenax*, *A. Breutelii*, *A. pallidevirens*.

Trask, B. Field Notes from Santa Catalina Island. Erythea, 7: 135–146. 30 N. 1899.

Wager, H. The Sexuality of Fungi. Ann. Bot. **13**: 575–597. D. 1899.

Waghorne, A. C. The Flora of Newfoundland, Labrador and St. Pierre et Miquelon. Part III. Proc. and Trans. Nova Scotian Inst. Sci. 9: 361–401. 31 D. 1899.